VOLUME TWO OF TWO

A STUDY OF THE PLANNING PROCESSES AT THE NATIONAL INSTITUTES OF HEALTH

ANROW Sciences

Contract Number

NO1-OD-2-2122

A MANDEX INC. DIVISION

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INTRODUCTION
TO THE
STUDY OF THE PLANNING PROCESSES AT THE NIH

Planning for biomedical research programs necessarily takes place in an atmosphere of uncertainty. The sources of requisite data are far from united, scarce resources must be shifted when new scientific opportunities require rapid exploitation, current knowledge is embodied in numerous disciplines, and the timeframe within which new research achievements will occur cannot be predicted consistently. These challenges do not preclude a systematic planning effort, but they do require that biomedical research planning be a structured and integral component of the research organization while at the same time remaining multi-faceted, open to creative thinking, and flexible enough to anticipate and adjust to new research needs and opportunities.

Those who plan for the biomedical research conducted and/or supported by the National Institutes of Health (NIH) continuously strive to meet these goals. Their efforts in this regard are influenced by a variety of factors from within the NIH and other components of the Federal Government as well as from outside constituency groups, the Congress, and the professional and lay public. For example, Congressional actions -- such as authorizing legislation, directives, and appropriations -- all directly affect research planning. Recommendations and other input from constituency groups must be considered; social, political and economic priorities must be weighed in light of the state-of-the-science and availability of resources; and the budget and planning decisions made by Public Health Service officials directly influence all levels of research planning at the NIH.

Beyond these complex factors, planning within the NIH is conducted on several levels and by numerous officials in various administrative, management, and program positions.

Organization of the NIH

A brief discussion of the organization of the NIH will serve to highlight the variety of administrative and programmatic levels. As illustrated in Exhibit I-1, the NIH is an agency of the Department of Health and Human Services (DHHS). As such, it is the Federal focal point for biomedical research. In an effort to uncover new knowledge that will lead to improved health for everyone, the NIH conducts research in its own laboratories; supports research conducted by non-Federal scientists in universities, medical schools, hospitals and other research organizations throughout this country and abroad; trains new research scientists; and supports the dissemination of knowledge to the professional and lay public.

Located on 306 acres of land in Bethesda, Maryland, the NIH maintains hundreds of laboratories and research-support offices, a 541-bed research hospital, and the world's largest repository of biomedical, medical, and health-related literature.

Organizationally, the NIH is made up of a central Office of the Director and 18 Bureaus, Institutes, and Division (BIDs), each with a designated set of research and/or service foci. This is illustrated in Exhibit I-2. The Director of the NIH provides overall leadership for all NIH activities and maintains close liaison with the DHHS Assistant Secretary for Health, as well as other components of DHHS, in matters relating to biomedical/medical research; health professions training, education, and resources; research training; and biomedical communications. The Director is assisted by ten Deputy and Associate Directors, including an Associate Director for Planning and Evaluation. It is this office that is the focal point for central-NIH planning.

Each BID is a structurally distinct entity and, depending on BID size and status, maintains its own administrative, management, planning, and programmatic responsibilities. Bureaus, of which there are four (see Exhibit I-2), tend to be larger, more complex organizations, and have a high degree of accountability, and a comprehensive set of planning responsibilities. The program areas within a Bureau are commonly called Divisions. The eight organizations

EXHIBIT I-1

Department of Health and Human Services Organization

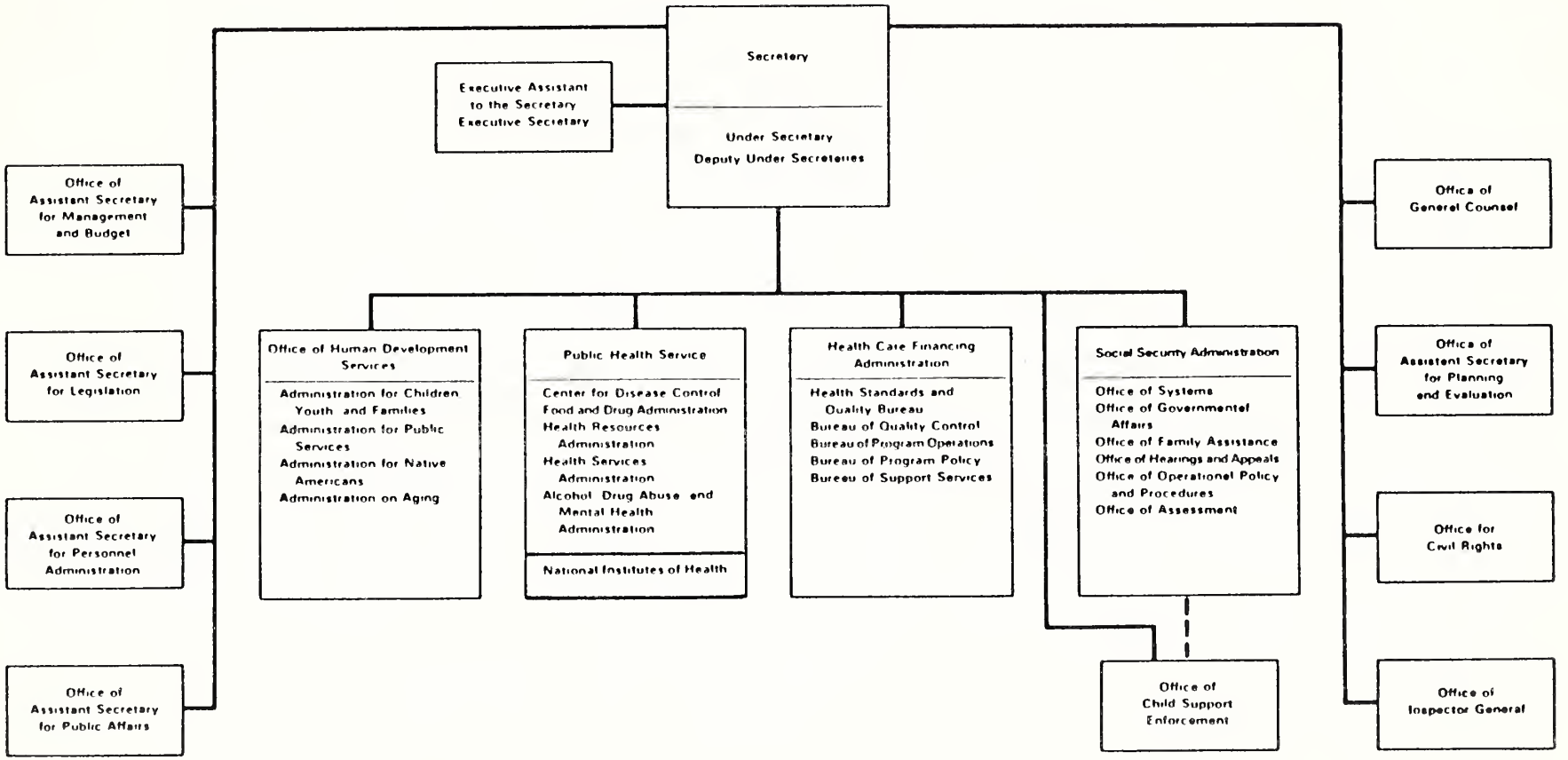
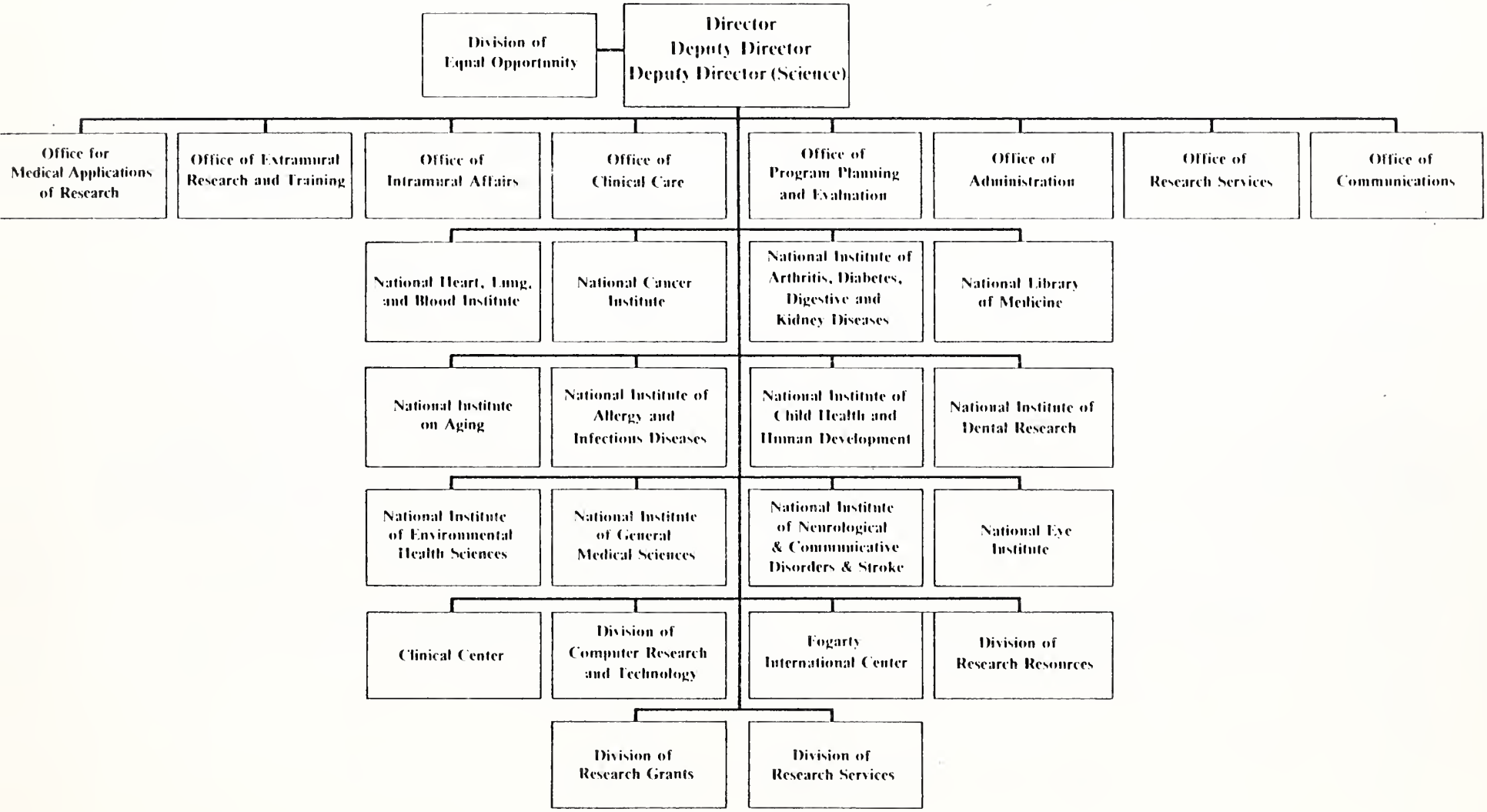

Secretary
Under Secretary
Deputy Under Secretaries
Executive Assistant to the Secretary
Executive Secretary
Office of Assistant Secretary for Management and Budget
Office of Assistant Secretary for Legislation
Office of Assistant Secretary for Personnel Administration
Office of Assistant Secretary for Public Affairs
Office of Human Development Services
Administration for Children Youth and Families
Administration for Public Services
Administration for Native Americans
Administration on Aging
Public Health Service
Center for Disease Control
Food and Drug Administration
Health Resources Administration
Health Services Administration
Alcohol Drug Abuse and Mental Health Administration
National Institutes of Health
Health Care Financing Administration
Health Standards and Quality Bureau
Bureau of Quality Control
Bureau of Program Operations
Bureau of Program Policy
Bureau of Support Services
Social Security Administration
Office of Systems
Office of Governmental Affairs
Office of Family Assistance
Office of Hearings and Appeals
Office of Operational Policy and Procedures
Office of Assessment
Office of Child Support Enforcement
Office of General Counsel
Office of Assistant Secretary for Planning and Evaluation
Office for Civil Rights
Office of Inspector General

EXHIBIT I-2

Department of Health and Human Services

Public Health Service

National Institutes of Health


Division of Equal Opportunity
Director
Deputy Director
Deputy Director (Science)
Office for Medical Applications of Research
Office of Extramural Research and Training
Office of Intramural Affairs
Office of Clinical Care
Office of Program Planning and Evaluation
Office of Administration
Office of Research Services
Office of Communications
National Heart, Lung, and Blood Institute
National Cancer Institute
National Institute of Arthritis, Diabetes, Digestive and Kidney Diseases
National Library of Medicine
National Institute on Aging
National Institute of Allergy and Infectious Diseases
National Institute of Child Health and Human Development
National Institute of Dental Research
National Institute of Environmental Health Sciences
National Institute of General Medical Sciences
National Institute of Neurological & Communicative Disorders & Stroke
National Eye Institute
Clinical Center
Division of Computer Research and Technology
Fogarty International Center
Division of Research Resources
Division of Research Grants
Division of Research Services

with Institute status also maintain extensive management, planning, and programmatic functions, but may be smaller and less organizationally complex than the Bureaus. Both Bureaus and Institutes are commonly referred to as Institutes. Divisions, on the other hand, rely more than the larger organizations on the central NIH administrative offices for management, planning, and programmatic functions. These six organizations provide support services to NIH and non-NIH users as well as conducting research in other areas of the focus.

Thus, planning may -- within certain boundaries -- be conducted differently at each NIH Bureau, Institute, and Division (BID) and on each level within a given BID. It is this complexity of influencing factors and processes for planning that led the Office of the Director, NIH to initiate this study of the planning processes currently employed by each BID. The remainder of this introduction will provide background information for those unfamiliar with planning at NIH, describe the evolution and context of this study, and provide an explanation of the methodology employed by the study team.

Planning at the National Institutes of Health

As stated above, biomedical research planning at the NIH is conducted on several levels. In the broadest terms, there is planning conducted at the central NIH level, i.e., by the Office of the Director, NIH, and at the level of the BID. However, within a given BID, planning is conducted at the level of the BID Director as well as at the programmatic, or Division, level. These planning levels are discussed below.

Planning at the Level of the Office of the Director, NIH

The central NIH planning process provides the framework for the establishment and coordination of overall policies and priorities. It is within this framework that the individual BIDs conduct their planning processes. Overall program planning responsibilities are located in the Program Planning Branch, Division of Program Analysis, a staff organization within the Office of the Associate Director for Program Planning and Evaluation, NIH (see Exhibit I-2).

The OD/NIH Program Planning Branch is responsible for:

- directing and managing the central NIH planning process for the Director, NIH;
- preparing the annual NIH Research Plan;
- planning and conducting the NIH Director's annual Planning/Appropriation Briefing Sessions and Program Review Sessions with Institute Directors;
- providing leadership in developing major analyses of broad planning issues affecting the programs and policies of the major program components of NIH;
- organizing periodic reviews of aspects of BID programs of interest to senior staff of the Office of the Director, NIH;
- preparing special studies and reports required by senior staff of the Office of the Director, NIH;
- providing ad hoc and continuing staff assistance to the Director, NIH, and senior OD/NIH staff, including such activities as serving as executive secretary of an NIH coordinating committee or drafting a presentation by a senior staff member for an outside group; and
- assuring official NIH clearance of BID planning documents and reports required by the Administration and Congress.

The major components of the central NIH planning process are as follows:

- Planning/Appropriation Briefing Sessions

  These annual sessions are held to provide the NIH Director with the information needed for the Congressional Appropriations hearings and for the establishment of tentative budget ceilings for the BIDs. Each session is attended by the NIH Director and Senior staff and the BID Director and Senior staff. Through these sessions, each BID is afforded an opportunity to interact directly with the NIH Director in resolving program issues and initiating budget strategies.

- Strategy Review Sessions. These annual sessions, also attended by the Director, NIH, and individual BID Directors, serve to refine the budget strategy for the upcoming year; establish priorities, various budgetary assumptions, policy decisions, and further refine the tentative budget ceilings.

- Program Review Sessions. These sessions, also held annually and attended by the Director, NIH, and the BID Directors, provide each BID an opportunity to explore program, administrative, policy, planning, and evaluation issues of mutual concern. These sessions are

not united to a specific budget event nor to the development of a specific plan. Therefore, they provide a forum for the discussion of science as well as management concerns.

- Trans-NIH Issues. Some health problems transcend the categorical boundaries of the BIDs. These areas are coordinated by committees representing each BID which report on the current status of planning and evaluation activities in the area of concern. Review Sessions with the Director, NIH, are conducted if necessary.

Planning at the Level of the Bureau, Institute, and Division

As noted earlier, each BID has established and conducts its own planning process -- and each responds to a central NIH planning process. While there are differences among the BIDs, each organization must consider many similar factors in planning and each conducts planning at the level of the BID Director as well as at the program level.

- The BID Office of the Director

  The degree and extent of planning activities conducted by a given BID Office of the Director (OD) varies among the BIDs depending on the nature and scope of the BID research activities, the services available legislative planning requirements, organization status, and management style.

  All BIDs are required to submit, annually, their component of the NIH Research Plan and an Evaluation Plan. In addition, some BIDs prepare formal long-range (i.e., five- to ten-year) plans, implementation plans, Annual Reports, and other ad hoc plans. The BID, OD may have responsibility for the actual writing and preparation of any given plan or may have a supervisory, coordinating role with the actual preparation being the responsibility of program staff and/or outside consultants. Similarly, some OD planning staffs involve advisory bodies in actual plan preparation activities while others use advisory bodies more peripherally.

  In general, however, each BID, OD planning staff is ultimately responsible for their organizations' planning efforts, including:

  - Assessing its goals, objectives, and the research strategies designed to meet those goals;

  - Reviewing program progress, the state-of-the-art, evaluation studies, and various reports addressing particular program areas;

- Assessing scientific opportunities and planning program directions and emphases;
- Attempting to determine the national significance of the health problems under consideration;
- Reviewing program contributions to broader health objectives established by PHS and DHHS;
- Reviewing responsiveness of programs/provisions to Congressional mandates;
- Involving advisory bodies, as well as respective professional communities in establishing program directives.

The BID Programs/Divisions

While primary responsibility for planning, evaluation, and related activities resides with the BID, OD planning staff, individuals at the program level also have important roles in planning.

Paramount to the successful execution of all BID planning processes are the activities of the Health Scientist Administrators (HSA). These individuals are responsible for program-specific planning. At the program level, the HSA must structure planning in a manner that is not unnecessarily restrictive so as not to stifle research innovation and creativity nor impede the exploitation of breakthroughs in knowledge. Thus, in operational as well as program planning, the HSA -- often in concert with his/her staff, professional contacts, and BID, OD planning staff -- engages in the following planning activities:

- Identification of fundamental and applied biomedical problems about which existing knowledge is sufficient to justify an organized and concerted federally-supported effort to achieve their solution.
- Determination of "gap" areas of research.
- Allocation of research support funds among competing substantive areas and mechanisms of support.
- Assessment of scope and depth of research capability by disciplinary and substantive areas.

- Determination of need and potential for expansion of research capability by disciplinary and substantive areas, including possible rate of growth consistent with high quality research.

- Budget recommendations for research and training support.

- Determination of needs for training new investigators, and for maintaining and improving the competence of existing investigators.

- Development and implementation of procedures to secure data and confidence-engendering judgments as the bases for sound program planning, for example, State-of-the-Art and review papers, major unanswered questions, future research directions.

- Determination of need for new or modified mechanisms of support and for research resources and facilities. Planning and implementation of measures to meet such needs.

- Feedback of program plans to the scientific and academic community.

- Communication of program planning recommendations to higher decision making authority.

- Determination of scientific opportunities and goals in concert with the public's aspirations for improved understanding of health and disease in relation to other social problems of over-all national concern.

- Maintenance of flexibility in program plans that will permit the scientic community to exploit "breakthroughs" in biomedical knowledge.

- Determination of reasons for failure to exploit "breakthroughs" in biomedical knowledge, and development of measures to facilitate exploitation if indicated.

- Maintenance of liaison between NIH, other Federal agencies, and private foundations concerned with support and conduct of health-related research.

- Participation in scientific meetings with respect to problems of science and science administration.

As can be seen, there is great diversity among the 18 BIDs and the Office of the Director, NIH, with respect to planning. This study represents the first attempt to systematically describe these planning processes. It should be noted at the outset that this document is a description of these planning processes; it is not an analysis, it does not attempt to compare one BID to another, and it is not intended to imply right or wrong with respect to different planning processes.

This introduction and the individual BID descriptions which follow are intended to provide to the individual who is not familiar with this subject a general understanding of the organization and purposes of the NIH and how planning and the various planning processes are integrated and employed in the overall organization. Toward this end, every attempt has been made to maintain a clear, easily understood writing style -- avoiding unnecessary jargon and providing explanation of processes, groups, and functions unique to the biomedical research community. At the same time, however, the planning processes are described in a systematic format, thus providing the Director, NIH, and the BID Directors and staffs with a more detailed view of planning than has previously been available.

This "descriptive" format, as well as other aspects of this report, are partially the result of significant changes in methodology which occurred relatively far into the study period. These, as well as other methodological issues are discussed below.

Methodology for Studying the Planning Processes at the NIH

This study, as originally designed, was intended to:

- systematically develop a body of knowledge about the planning processes in use at the NIH so that each organization could build upon the experience of one or another and so that changes and improvements can be made based upon a full understanding of all of the approaches;
- provide information useful in considering the implications of any proposals, directives, or mandates recommending change in the NIH planning function;

- identify and describe the major outcomes of the various planning approaches; and
- provide a basis that could be used to conduct an evaluation of the planning process.

To meet these objectives, the project team, the Project Officers, and the Project Advisory Committee developed study areas and data collection methods amenable to analysis and the development of recommendations. The study areas delineated important aspects of planning such as the requirements for developing plans, the relationships between planning and other functions, the outcomes of, and barriers to, planning, resources used in planning, and strategies for evaluating planning. These data would ultimately be analyzed within and across BIDs along four dimensions: (1) functional analysis of the events in a given planning process; (2) organizational analysis of planning functions; (3) analysis of the flow of information into, within, and out of the various planning processes; and (4) analysis of decision-making with specific planning processes.

The BID Planning Officers were the primary point of contact for identification and collection of information for their BID. As a first step in the actual information collection phase of the project, the project team conducted interviews with a small sample of Planning Officers to test and determine the best way of collecting information. Based on the review and analysis of the information received, the project team developed a list of required information items.

Information items were then put in a formal "questionnaire" that allowed the BID Planning Officer to indicate the most appropriate sources and methods (i.e., documents vs. personal interviews) for gathering information.

Documents identified by the Planning Officers were then collected and reviewed by the project team. Useful information was to be identified, abstracted, and coded by BID, study objective(s), study area(s), and source document.

Based on observations made by the project team and comments from the Planning Officers, minor adjustments to the information collection procedures were made.

Subsequently, the project team began a full scale information collection from all BIDs. The procedures outlined in the first step (as adjusted) were essentially repeated for each BID. In all cases, the collection of information from documents preceeded interviews with BID staff (other than the Planning Officer); interviews were conducted after the documents were reviewed. This review assisted the project team in identifying information gaps and specific items of information requiring expansion or clarification. In all cases, the BID's definition of "planning" determined the focus for the interviews.

Data were collected, reviewed, and documented so as to provide a systematic means for examining the information, to ensure consistency in developing the descriptions of each BID's planning process, and to aid in developing and communicating suggestions for possible future evaluation methodologies.

Midway in this process, however, the requirements for the project were modified. This modification obviated the need for analysis and the development of recommendations. This, in turn, eliminated the need to preserve the integrity of the study areas, within which data were to be collected and analyzed. Consequently, data collection efforts required a "reporting" rather than a vigorous, analytic approach.

Since these modifications were implemented during the later stages of project work, the project team had a great deal of information for some BIDs but was no longer able to collect similar data for the remaining BIDs. Moreover, five BIDs, and the OD, NIH, were eliminated from the study.

Thus, this document provides descriptions of the planning processes for 13 BIDs. The reader will observe differences among these descriptions with respect to level of detail, emphasis, and comprehensiveness. These differences may be attributed to three factors:

(1) The required modification in study design and approach to data collection occurred after data collection had been nearly completed for some of the BIDs and before data collection had begun for other BIDs. Therefore, more thorough data collection was possible in some instances.

(2) All information was collected and reported based on each Planning Officer's definition of planning and areas of emphasis. Thus, the degree of specificity and completeness was determined by the extent and emphasis of the information provided by each BID.

(3) The relative differences in the importance of the developmental stage of certain functions (e.g., evaluation, budget activities, program analysis) among the BIDs resulted in varying levels of discussion and detail. Consequently, the description of evaluation activities, for example, in one BID may be much more extensive than in others. In some cases, this results in a different organization for some BID descriptions.

Again, these differences do not necessarily mean that certain activities which are not addressed are not considered important within a given BID. In addition to the project modifications, changes in BID status and/or organization, the impact of severe resource limitations, and numerous external factors have necessitated shifts in emphasis and direction for many BIDs.

In addition, planning -- especially in the research environment -- is a dynamic process. It is, by necessity, a continuously evolving process. Similarly, the individuals responsible for planning tend to be dynamic, mobile people. An attempt to "freeze" those elements and capture a snapshot of 13 sets of planning processes and officials naturally met with certain difficulties. In some cases, new BID Directors and/or Planning Officers were recently appointed and in the process of revising planning within the organization. Other BIDs were midway into new planning processes, while still others were asked to recapture and report on a process that was conducted years ago. The most appropriate individual to describe a process was sometimes no longer with the BID; needed documents were sometimes not available.

It should also be noted that some Planning Officers had the opportunity to review the description of their BID. The project modifications eliminated this review process for others.

One factor, however, remained constant and universal: the project team was provided, at all times, with the overwhelming cooperation and support of the Project Officer, Mr. Kurt Habel, the Chairman of the Project Advisory Committee, Dr. Jay Moskowitz, other members of the Project Advisory Committee, BID Planning Officers, and key staff. These individuals did as much as possible to ease the difficulties discussed above. They took hours of time from busy schedules for interviews, locating documents, reviewing draft reports, and providing valuable advice and guidance. The study team, which consisted of Mr. Ralph O. Williams (Project Director), Ms. Dierdre Kloman, and Mr. James Sevick wishes to extend its appreciation for those efforts.

SUMMARY FACTUAL
DESCRIPTION OF THE
PLANNING PROCESSES OF THE
NATIONAL INSTITUTE OF DENTAL RESEARCH

"STUDY OF THE PLANNING PROCESSES AT NIH"

NIH Contract Number 1-OD-2-2122

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1. THE NATIONAL INSTITUTE OF DENTAL RESEARCH: ITS MISSION AND ORGANIZATION

The National Institute of Dental Research (NIDR) is one of eight Institutes which, along with four Bureaus, and six research and support Divisions make up the National Institutes of Health (NIH).

The precursor to the NIDR was the PHS Dental Hygiene Unit, which was established in 1931. The NIDR was authorized in 1948 by PL 80-755, the National Dental Research Act.

A. MISSION

The NIDR was established to conduct, support, and foster research investigations on the causes, treatment, and prevention of dental diseases and conditions.

In addition, the NIDR mission also includes provisions for the --

- conduct and support of basic research relevant to the NIDR basic mission;
- conduct and support of clinical, epidemiological, and applied studies relevant to the NIDR mission;
- cooperation and collaboration with other Federal and non-Federal groups engaged in basic, clinical, epidemiological, and applied research pertinent to dental problems;
- contract support of applied research and development;
- provision of grants-in-aid for research training;
- provision of consultation, necessary dental examinations, and treatment to research patients of other NIH Institutes having clinical care responsibilities;
- participation in the NIH graduate program;
- conduct of a comprehensive program of information on research progress for scientists and the public through regularly scheduled publications and through public communications media, exhibits, and films; and
- maintenance of a continuous and frequent interchange of information among the various scientific disciplines engaged in dental research through conferences, symposia, and publication of proceedings.

B. NIDR PROGRAMS

The NIDR has three major program areas, each headed by an Associate Director.

1) The Intramural Research Program is directed toward the acquisition of fundamental knowledge about orofacial diseases and disorders and the development of diagnostic treatment, control, and preventive measures.

2) The Extramural Program comprises five programmatic branches and a Scientific Review Branch. The five extramural branches are:

   - Craniofacial Anomalies Program;
   - Periodontal Diseases Program;
   - Pain Control and Behavioral Studies Program;
   - Restorative Materials Program; and
   - Soft Tissue Stromatology and Nutrition Program.

   In addition, the Extramuarl Program supports five non-categorical Dental Research Centers which were initiated (at universities) during the 1960s.

3) The National Caries Program, is divided into both extramural (Caries Research Grants and Contracts Branch) and intramural (Caries Prevention and Research Branch) activities. This Program has a designated Planning Officer who coordinates planning activities with the Office of the Special Assistant to the Director, NIDR.

The NIDR supports applied research and development through contracts; provides grants-in-aid to universities, hospitals, other public or private non-profit groups, and to individuals for research training, fellowships, and career development awards; and provides consultation, necessary examinations, and dental treatment to NIH research patients.

C. ORGANIZATION OF THE NIDR

In addition to the three major research programs, the NIDR maintains three organizationally distinct offices:

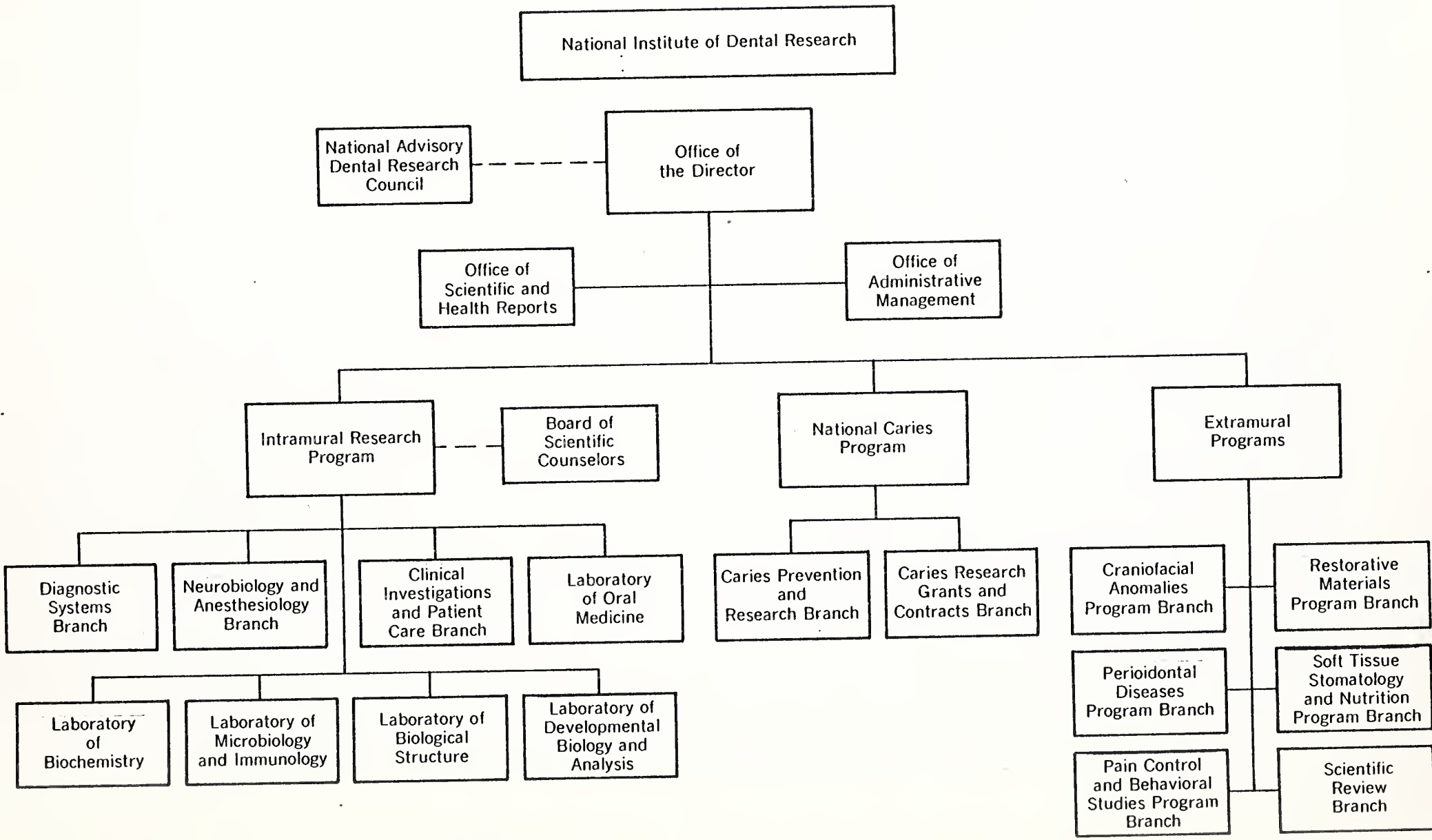
1) The Office of the Director includes the Director, NIDR and the Office of the Special Assistant to the Director (OSAD). The OSAD comprises the Planning and Evaluation Officers and support staff. It is this office that is responsible for the coordination of planning and evaluation at the NIDR. A detailed description of the OSAD is included in Section 3 of this report.

2) The Office of Scientific and Health Reports (OSHR) plans and conducts a comprehensive public relations and information program for the NIDR. The OSHR disseminates information relating to the Institute's mission, objectives, and research activities.

3) The Office of Administrative Management is composed of (1) the Financial Management Section - which serves as the Institute's center for budgetary data and related activities and as the primary financial component of the Office of the Director; (2) the Management Information Section which is responsible for the computer system of information on NIDR's efforts in grants, contracts, intramural research, and dental research institute subprojects; and (3) the Personnel and Management Analysis Section - which is the focal point for personnel and management analysis.

Exhibit 1 illustrates the organizational structure of the NIDR.

Exhibit NIDR-1


National Institute of Dental Research
National Advisory Dental Research Council
Office of the Director
Office of Scientific and Health Reports
Office of Administrative Management
Intramural Research Program
Board of Scientific Counselors
National Caries Program
Extramural Programs
Diagnostic Systems Branch
Neurobiology and Anesthesiology Branch
Clinical Investigations and Patient Care Branch
Laboratory of Oral Medicine
Caries Prevention and Research Branch
Caries Research Grants and Contracts Branch
Craniofacial Anomalies Program Branch
Restorative Materials Program Branch
Perioidontal Diseases Program Branch
Soft Tissue Stomatology and Nutrition Program Branch
Pain Control and Behavioral Studies Program Branch
Scientific Review Branch
Laboratory of Biochemistry
Laboratory of Microbiology and Immunology
Laboratory of Biological Structure
Laboratory of Developmental Biology and Analysis

2. OVERVIEW OF THE NIDR PLANNING COMPONENT

A. ROLE OF PLANNING

Planning is viewed as an adjunct to decision-making, rather than as an autonomous function. In conjunction with evaluation, budget, and other considerations -- planning is used to coordinate the flow of information within the NIDR and to design and orchestrate the processes used to determine the direction in which research should be going.

Formal planning at the NIDR evolved as a result of major program evaluation efforts. Consequently, planning and evaluation at the NIDR are closely linked. The goals and objectives originally developed to evaluate NIDR programs have been used to develop plans and measure planning progress since 1970. The results of evaluations are used to reevaluate program goals and objectives and therefore influence future plans for the Institute. Similarily, planning requirements (which include having a set of goals, objectives, and recommendations for program research areas) have led to the development of evaluability assessments and the reevaluation of program goals and objectives.

The budget cycle is seen as a tandem activity with planning. Budget requirements are not the driving force, or framework, for planning. Neither does planning "drive" budget considerations. The information developed for preparing the NIDR's Annual Research Plan provides the narrative justification for development of the budget. Moreover, the development of the Long-Range Research Plan (now in progress at the NIDR) requires budgetary information and will ultimately supplement NIDR's budget planning by identifying resources needed over a longer time period.

On the basis of planning's role at the NIDR, the objectives of planning are --

- to identify research needs and opportunities;
- to identify planning and evaluation strategies;
- to prepare guidance materials and criteria for re-evaluation of goals and objectives; and
- to promote the NIDR mission.

These objectives are considered in all planning conducted by the NIDR, which includes:

- Long-Range Research Planning;
- Annual Research Planning; and
- Evaluation Planning.

B. KEY ACTORS IN THE NIDR PLANNING PROCESSES

The Office of the Special Assistant to the Director (OSAD) has primary responsibility for planning and evaluation at the NIDR. However, the NIDR Director, Associate Directors, Executive Officer, and Director of the Office of Scientific and Health Reports (OSHR), are also involved in these processes. These individuals are collectively referred to as the Executive Staff. In addition, the NIDR Advisory Bodies are an integral component of the planning processes.

The Director of the NIDR has final authority with respect to planning and evaluation decisions. However, most issues are discussed at meetings of the Executive staff; thus, decisions are born of consensus.

Other individuals of the Executive staff are also involved in all phases of planning and evaluation. It is this group, along with the Director, NIDR, that formulates new concepts for discussion, coordinates and participates in the development of program goals and objectives, functions as an intra-institute liaison group to ensure a comprehensive and collaborative planning process, reviews the actual planning documents, and generally works together to facilitate the overall coordination and supervision of planning and evaluation activities.

The Executive Staff also selects and works with outside experts (consultants) in developing planning documents. These experts are consulted to ensure that no important area of research is overlooked and that all current, state-of-the-science activities are included in the NIDR's long-range planning.

In addition, the NIDR functions with three major standing advisory bodies:

- The National Advisory Dental Research Council (NADRC) reviews and evaluates program accomplishments and helps to identify and resolve problems in program planning and development. Meetings of the NADRC are held three times a year.

- The Board of Scientific Counselors (BSC) provides advice on the intramural research programs through periodic visits to the laboratories and branches for assessment of the research in progress and evaluation of productivity and performance of staff scientists. Meetings of the Board are held approximately twice a year.

- The NIDR Programs Advisory Committee provides advice on scientific and other aspects of various areas in periodontal diseases and dental caries. Meetings of the full Committee are held at least annually. The subcommittees meet at least twice a year.

These three standing advisory bodies do not have an approve/disapprove function with respect to planning at the NIDR. They do, however, act as reviewers within planning and evaluation processes. Representatives from these groups have participated in the development of the long-range research plan by writing or reviewing state-of-the-science papers, acting as Panel members in the development of the plan, or serving on the fourth NIDR advisory body -- the (ad hoc) Long Range Plan Coordinating Committee (LRPCC).

The formation of the LRPCC will be described in greater detail in the step-by-step description of the Long-Range Research Plan development process in Section 4. The membership of the LRPCC includes --

- The three NIDR Associate Directors
- The Planning and Evaluation Officers from the OSAD
- Representatives from the standing advisory bodies
- Representatives from the NIDR research constituent organizations
- Experts in those fields that relate to NIDR programs

The Chairman of the LRPCC is the NIDR Deputy Director, and the Executive Secretary is the OSAD Evaluation Officer.

The LRPCC's mandate allows review and advisory functions, but no approval/disapproval role. The collection, review, and synthesis of information occur through the LRPCC, but the final decision on the utility of the information for the long-range plan is a function of the NIDR's Executive Staff.

3. THE NIDR PLANNING OFFICE

A. ORGANIZATIONAL STRUCTURE OF THE PLANNING OFFICE

There is no structurally distinct "Planning Office" at the NIDR; rather, the Office of the Special Assistant to the Director (OSAD) is responsible for coordinating all planning and evaluation activities of the NIDR through the "executive staff" which includes --

- The Director, NIDR
- The Special Assistant to the Director
- The Evaluation Officer, OSAD
- The Three Associate Directors
- The Executive Officer
- The Acting Director of the Office of Scientific and Health Reports

B. FUNCTIONS OF THE OFFICE OF THE SPECIAL ASSISTANT TO THE DIRECTOR

The Office of the Special Assistant to the Director has primary responsibility for coordination of planning and evaluation activities at the Institute. In addition to long-range research planning, the Annual Research Plan, and the Annual Evaluation Plan, this office --

- provides staff assistance to other NIDR units (such as the Budget Office and the Dental Clinic) relative to planning;
- prepares special reports, in conjunction with planning and evaluation activities, such as a working paper on NIDR/Industry relationships or narrative documentation for budget submissions;
- prepares Program Performance Summaries for NIDR research programs;
- provides consultation to the research programs in support of social and behavioral sciences;
- coordinates international health activities of the Institutes, e.g., may organize workshops, conferences, and symposia, such as a symposium on "Dental Research in the Developing World," organized for the International Association for Dental Research;
- serves as BID international health liaison and prepares various reports and commentary for the Fogarty International Center;

- represents the NIDR (either as member or chairperson) on several committees, such as the American Association for Dental Research, NIH Centers Committee, and the Prevention Committee of the American Public Health Association;

- functions as support staff for the Director, NIDR, by preparing the Director's Report to the National Advisory Council, developing commentary on proposed legislation, responding to requests for information, and providing consultation to extramural researchers;

- conducts legislative analysis; and

- coordinates and conducts evaluation studies of NIDR programs.

C. INVOLVEMENT OF THE OSAD WITH OTHER OFFICES

1. Within the NIDR

The OSAD is involved with other NIDR offices on informal as well as formal bases. For example, the OSAD functions as staff to the Office of the Director; as liaison to all major components of the NIDR (through prevention, international health, and legislative activities); and as coordinator of regular Executive Staff meetings.

2. Trans-NIH and Interagency Involvement

The NIDR is involved in both trans-NIH and interagency activities. For example, the Institute is the lead agency for the ACRF program, and has representatives on several other committees. The NIDR Office of the Director approves all NIDR submissions to these committees.

4. DESCRIPTION OF SPECIFIC PLANNING PROCESSES AT THE NIDR

A. LONG-RANGE RESEARCH PLANNING

The NIDR is currently in the process of developing a Long-Range (Five-Year) Research Plan. This will be the NIDR's second five-year research plan, the first ("Oral Disease Targets for the Seventies") having been developed in the 1970s. Both long-range research plans have evolved as a function of evaluation. The first long-range plan was developed primarily to inform the community of the state-of-the-science in dental research. The development of this plan was a short, workshop-oriented exercise which involved NIDR staff only. This plan identified (1) the need to evaluate the six NIDR categorical programs and (2) the need to identify research needs and opportunities, as well as possible strategies with which to attain them. This then became the basis for planning and evaluation at the NIDR and led, in 1974, to the first major evaluation -- that of the Periodontal Diseases Program. This was followed by the National Caries Program (NCP) and the Craniofacial Anomolies Program (CAP) evaluations.

All NIDR programs have written goals and objectives. The NCP and CAP had goals and objectives developed as the first step in their formal evaluations. For those programs that have not been formally evaluated, goals and objectives were developed as a part of the Goals and Objectives Writing Exercise of 1980. The goals and objectives prepared for each program, as well as the results of the completed evaluations, are being used to develop the current long range research plan. In fact, these evaluations are serving as the "blueprints" for the state-of-the-science papers which are the foundation of the long-range plan. Moreover, the development of the plan is serving as a "mini-evaluation" or "evaluation-framework" for those programs that have not been formally evaluated.

Continuity during the long-range research plan development process has been assured by the relatively low "turn-over" rate among those involved. For example, the current director of the NIDR was, at one time, an NIDR staff member and one of the original members of the LRPCC. Moreover, because the Director has experience in his own area of interest, he also functions in a staff role

with respect to the development of the state-of-the-science papers being developed for the long-range plan.

Many of the individuals involved in the initial long-range plan and in the goals and objectives writing exercise are now involved in the development of this long-range plan. These individuals include outside representatives of each research area and key consultants, as well as program staff.

It is anticipated that the long-range plan will be used as a basis for developing future annual research plans as well as a communication tool, an aid in program management, and a framework for implementation.

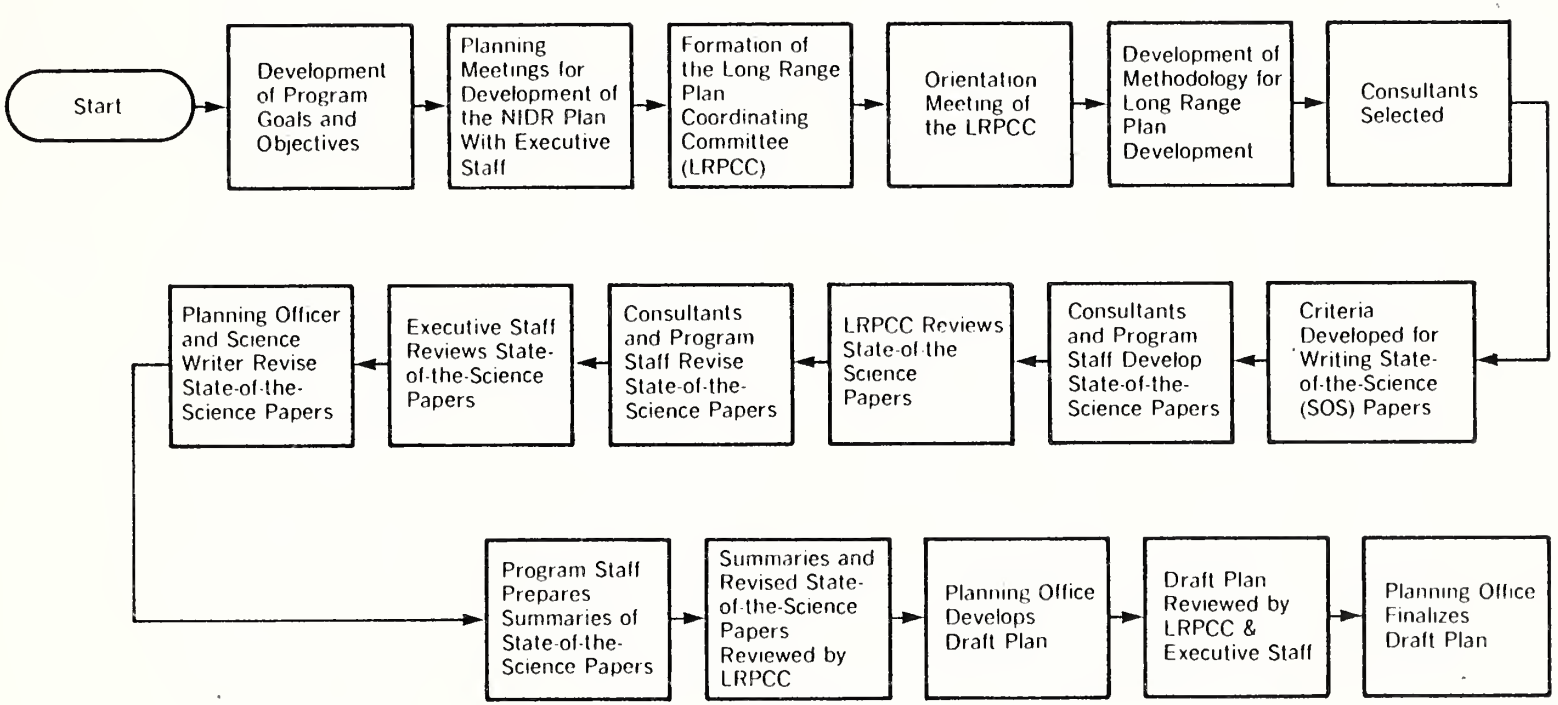
Exhibit 2 illustrates the steps in developing the long-range plan and the discussion below provides a detailed description of this process.

Based on the goals and objectives writing exercise of 1980, the results of the formal program evlautions, the interest and desire of the Director at that time, and agreement among the executive staff the decision was made to begin developing a long-range plan for the NIDR. Thus, the executive staff, OSAD, and NIDR Director held meetings with the NIDR program staff to solicit their input regarding the long-range plan and to initiate the formation of a coordinating committee to oversee the development of the plan.

Following this, the Long-Range Plan Coordinating Committee (LRPCC) was formed. The LRPCC members were selected to represent the broad interests of NIDR, trans-NIH, interagency, and outside constituent research and professional groups invovled in dental research areas. The LRPCC is chaired by an NIDR Associate Director and the OSAD Evaluation Officer serves as the Executive Secretary. It was determined that the LRPCC's mandate would be of an advisory nature and that any approval functions would be the responsibility of the executive staff.

Orientation for the non-NIDR members of the LRPCC and the development of an initial methodology to be used in developing the Long-Range Research Plan was the focus of the first meeting of the LRPCC. The methodology developed by the LRPCC was then distributed to the NIDR staff for their review. The staff made recommendations during NIDR staff meetings with the OSAD and executive staff.

Exhibit NIDR-2
Process for Developing the NIDR Long Range Research Plan


Start
Development of Program Goals and Objectives
Planning Meetings for Development of the NIDR Plan With Executive Staff
Formation of the Long Range Plan Coordinating Committee (LRPCC)
Orientation Meeting of the LRPCC
Development of Methodology for Long Range Plan Development
Consultants Selected
Criteria Developed for Writing State-of-the-Science (SOS) Papers
Consultants and Program Staff Develop State-of-the-Science Papers
LRPCC Reviews State-of-the Science Papers
Consultants and Program Staff Revise State-of-the-Science Papers
Executive Staff Reviews State-of-the-Science Papers
Planning Officer and Science Writer Revise State-of-the-Science Papers
Program Staff Prepares Summaries of State-of-the-Science Papers
Summaries and Revised State-of-the-Science Papers Reviewed by LRPCC
Planning Office Develops Draft Plan
Draft Plan Reviewed by LRPCC & Executive Staff
Planning Office Finalizes Draft Plan

Based on the review and comments of the NIDR staff, the initial methodology was refined by the OSAD so that it was more workable within the NIDR.

The final methodology included --

- using the goals and objectives developed for each of the six program areas, and
- identifying (at the goal level) for each of the six program areas a method for developing a document that would address the state-of-the-science in that area.

Within the six programs, there were 36 program areas identified for development of state-of-the-science papers. It was decided at this point that, although the exact methodology may vary from one paper to another, each state-of-the-science paper would be prepared by one primary author and two reviewers, all of whom would be consultants to the NIDR. The orientation for primary authors of the state-of-the-science papers is included here as Appendix 1; the orientation for reviewers appears as Appendix 2. The variance among program areas was limited to the roles played by these consultants: in some cases the three individuals were co-authors, in other cases the reviewers did not participate in the actual writing.

Candidates for consultant positions were suggested by the LRPCC, executive staff, program staff, OSAD, and Director, NIDR. This process was coordinated by the OSAD. Discussions among these individuals led to the development of a final list of consultant candidates, which included intramural, extramural, and "outside" experts. The final selection of consultants was made by the Director, NIDR.

The proposed strategies and criteria for developing the state-of-the-science papers were refined during the second meeting of the LRPCC. Any significant disagreements on these issues were resolved through a consensus of those present at the meeting.

Following this meeting, the consultants, working with the appropriate staff and outside experts, developed the draft state-of-the-science papers using specific criteria established by the LRPCC and refined by the NIDR program staff, executive staff, and OSAD. The use of these criteria allowed for an identification of what had been done in that research area, what needed to be done, and what types of things had been barriers or facilitators to the research.

The draft state-of-the-science papers were reviewed at a third meeting of the LRPCC. Primary importance was placed on the comprehensiveness, balance of emphasis, identification of overlaps among the 36 papers. There was no attempt at this point to delete overlaps or edit any data; rather, this was an attempt to ensure comprehensiveness and validity, so that the data could be used as a foundation for the longrange plan. Program staff also attended this meeting.

Following this review, the consultants and program staff refined the state-of-the-science papers according to the LRPCC criteria. There were three major "cuts" to be made in this refinement. Given the entire scope of dental research, the consultants were to eliminate those recommendations that were not within the mission of the NIDR. Next, they attempted to include only those activities that could be carried out during the five-year period to be covered by the long-range plan. Finally, budget/resource contraints were taken into consideration. The identification of resource needs was conducted as a separate but linked activity in this refinement. The consultants were asked to complete a form to indicate resource needs. In addition to limiting the scope of work of the papers in this manner, the consultants were requested to consider additional information (either supplied by the Executive Staff or to be collected by the consultants), if necessary.

The executive staff, including the Director, NIDR, then reviewed the refined papers according to these criteria. This review was of an informal nature, but did rely on a consensus of opinion among the executive staff. Because the executive staff is relatively small, and because the current Director of the NIDR was an original member of the LRPCC, the process of reaching consensus is facilitated.

In the event that two state-of-the-science papers are found to be duplicative, the review of both papers is assigned to one reviewer. This affords a consistant and objective view of both papers and facilitates making a final recommendation.

At this point, the OSAD brought in an experienced science writer to facilitate the process of "boiling down" input from the over 150 writers who were involved in writing the 36 state-of-the-papers. In this way potential problems were identified and the process of developing the final plan was begun. The science writer worked with the program staff and the OSAD to organize and make more manageable the large volume of incoming information.

The executive staff then requested that NIDR program staff (intramural and extramural) develop a summary of their state-of-the-science papers. The program staff worked closely with the OSAD in developing these summaries. Regardless of the number of individual state-of-the-science papers developed within each program, each program's staff were instructed to write only one summary. In addition, a summary form (included as Appendix 3) for each recommendation from the state-of-the-science papers.

The criteria used for these summaries were developed by the executive staff and the LRPCC and were given to the program staff.

The OSAD then prepared a draft outline (see Appendix 4) for the Long-Range Research Plan. This outline was based on the state-of-the-science papers and summaries, as well as input from the program staff, the executive staff, and the LRPCC.

In December, 1982, the executive staff met with the total NIDR staff to share with them the draft plan. This meeting provided the first opportunity for all NIDR staff members to voice their opinions of the Plan. Input from the staff was considered by the OSAD and transmitted to the authors of each paper.

The state-of-the-science summaries and the draft Plan were then submitted for review at the fourth meeting of the LRPCC.

The OSAD and the science writer then developed the Draft NIDR Long-Range Research Plan. The budget officer was also included in this process.

This draft was reviewed at the fifth and final meeting of the LRPCC, which includes the NIDR executive and program staffs and the National Advisory Dental Research Council.

The preparation and publication of the final NIDR Long-Range Research Plan are the responsibility of the OSAD and the science writer.

1. Implementing the NIDR Long-Range Research Plan.

There is no formal implementation planning process, but the Long-Range Research Plan will identify recommendations and strategies for each of 14 research areas. areas. These will serve as a tool which program staff can use to assess (1) their progress toward meeting the recommendations in the Long-Range Plan, and (2) trends in research grants and contracts.

Implementation will be monitored through periodic assessments (by the program staff) of the degree to which recommendations of the Long-Range Plan have been met (as measured by the number of grants and/or contracts in that research area). If, for example, one (or a group of) recommendations shows no grant or contract activity, the strategy (e.g., workshop, publication in professional journal) suggested to achieve that recommendation can be conducted by program staff.

In this way, the implementation process is being viewed as a management aid (rather than as an enforcement mechanism), that must be dynamic to adapt to the constantly changing budgetary, scientific, and political environment.

2. Updating the NIDR Long-Range Plan

The first step in implementing the plan will be developing a mechanism and schedule for updating it. It is anticipated that the plan will be updated on an annual basis.

B. THE NIDR COMPONENT OF THE NIH RESEARCH PLAN

The NIDR Annual Research Plan fulfills the NIH-wide requirement for such a plan. Its format and schedule also reflect NIH requirements. The NIDR program staff have, in the past, used their program evaluation results and goals and objectives to develop the plan. In the future, they will use the Long-Range Research Plan for this purpose.

Exhibit 3 represents the processes for developing the NIDR component of the NIH Research Plan. The steps involved in this process are --

- Step 1: Program Review Meeting. During December/January, the Director, NIDR and selected NIDR program staff meet with the Director, NIH to present a review of NIDR programs.

- Step 2: Guidance Received and Reviewed. The OSAD receives guidance from the OD, NIH and may, in conjunction with the executive staff, revise the guidance to reflect current NIDR needs and the material previously prepared for their presentation to the OD, NIH (e.g., some tasks required by the guidance may have been completed by this time; conversely, the program staff may need to complete additional tasks to comply with the guidance). The review of and decision to revise the guidance is discussed at a meeting of the NIDR Director, OSAD, and executive staff. The NIDR Director has final decision-making responsibilities.

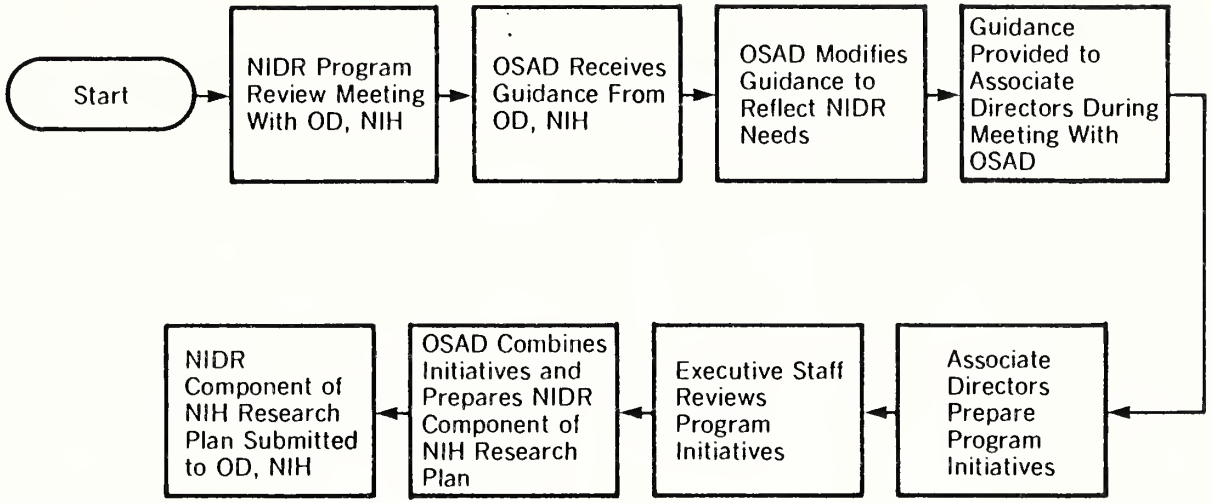
- Step 3: Guidance Modified. Based on the discussion and decisions made by the NIDR Director, the OSAD Planning Officer is modifies the guidance. A copy of the modified guidance is sent to the Director, NIDR for informational purposes only.

- Step 4: Guidance Provided to Associate Directors. The OSAD Planning Officer holds meetings with the Associate Directors to discuss the guidance and possible revisions to the materials that had previously been prepared for the OD, NIH presentation. The Associate Directors are told that they may get additional input from their staffs or simply modify these materials on their own if they wish.

- Step 5: Program Initiatives Prepared. The Associate Directors then prepare the initiatives based on their expertise, input from other experts (both inside NIDR and from the scientific community), the NIDR Directors and their program staffs.

  Initiatives are selected for inclusion based on research needs and opportunities, evaluation findings, and planning outcomes.

Exhibit NIDR-3
Development of the NIDR Component of the NIH Research Plan


Start
NIDR Program Review Meeting With OD, NIH
OSAD Receives Guidance From OD, NIH
OSAD Modifies Guidance to Reflect NIDR Needs
Guidance Provided to Associate Directors During Meeting With OSAD
Associate Directors Prepare Program Initiatives
Executive Staff Reviews Program Initiatives
OSAD Combines Initiatives and Prepares NIDR Component of NIH Research Plan
NIDR Component of NIH Research Plan Submitted to OD, NIH

- o Step 6: Program Initiatives Reviewed. The Associate Directors then meet with the Executive staff to review the initiatives. If priority ranking is required, this is discussed and decided upon through reaching a consensus among the Director, Associate Directors, and the rest of the executive staff.

- o Step 7: Annual Research Plan Finalized. The OSAD Planning Officer then combines the input (initiatives) from the Associate Directors and prepares a finalized version of the Annual Research Plan.

- o Step 8: NIDR Annual Research Plan Submitted to OD/NIH.

C. THE NIDR ANNUAL EVALUATION PLAN

The NIDR's Annual Evaluation Plan submission to the OD:NIH corresponds to the PHS requirement. It is prepared by the OSAD and is used as the "monitor and guide" for evaluation planning activities.

The overall "evaluation strategy" at the NIDR has been to formally evaluate all of the major programs. Two of these have been completed and the third -- that of the Dental Research Institutes and Centers -- is underway. This strategy was initiated by the former NIDR Director's desire to address the perceived departmental and congressional concerns regarding the size and direction of the Federal investment in fundamental research, the development of priorities, the reasons for rapidly rising research costs, and the relationship between research and health areas. There was no legislative mandate to conduct these evaluations, but the NIDR felt that systematically evaluating all of their programs would accelerate the rate of discovery, provide a sound basis for developing plans, present the strongest justification for appropriations, and inform their advisory bodies so they could better advise program staff.

Over and above this strategy, however, more focused evaluations of specific program components may be conducted by specific request. For example, the NCP is currently involved in an evalutaion of its health promotion and education activities. The NCP staff spoke directly to the Evaluation Officer in the OSAD in order to have this project included in the Annual Evaluation Plan. Similarly, the NIDR Director's interest in the Dental Research Institutes and Centers led to the evaluation of that program.

The OSAD does not, as a general rule, actively solicit program staff submissions for those types of projects. Because the OSAD, NIDR is a small office and because evaluations (both those conducted with 1% set-aside funds and those that do not use these funds) of an operational, "management analysis" nature are ongoing, there is often sufficient information existing within the NIDR to answer most program evaluation questions.

Evaluation planning at the NIDR is initiated annually by the request from the OD:NIH to submit an Annual Evaluation Plan. Exhibit 4 illustrates the process used to develop this plan and the following describes each step:

- Step 1: Evaluation Projects Selected for Inclusion. The decisions concerning which projects should be included in the annual plan are made during one of the regular weekly meetings of the executive staff.

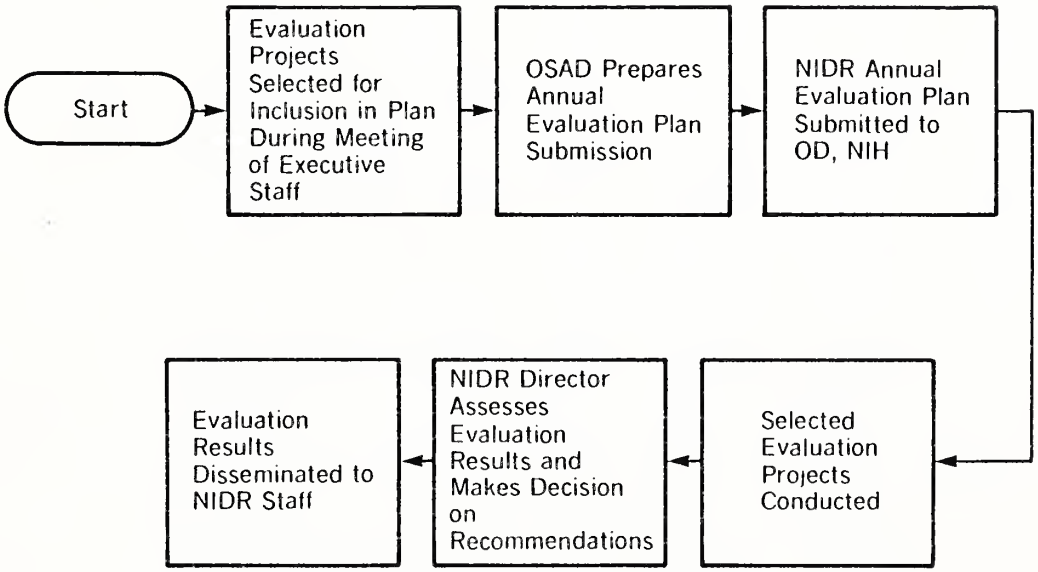
  Plans to evaluate all six major NIDR programs continue to have priority. Other evaluation projects -- suggested by program staff, the Director/NIDR, or outside constituents -- are discussed and decided upon through reaching a consensus by the executive staff.

- Step 2: Evaluation Plan Submission Prepared. The OSAD/Evaluation Officer submits the evaluation project descriptions and justifications to the OD:NIH.

- Step 3: Evaluations Approved, Conducted, Disseminated. Those projects that are approved are initiated within the NIDR through the Associate Director and the executive staff. The results of evaluations and distributed to NIDR program staff and advisory bodies.

- Step 4: Evaluation Results Considered for Adoption. Once an evaluation is complete, the Director, NIDR decides which recommendations can be adopted and to what degree. The executive staff monitors implementation of evaluation suggestions in an informal manner.

Exhibit NIDR-4
Development of the Annual Evaluation Plan


Start
Evaluation Projects Selected for Inclusion in Plan During Meeting of Executive Staff
OSAD Prepares Annual Evaluation Plan Submission
NIDR Annual Evaluation Plan Submitted to OD, NIH
Selected Evaluation Projects Conducted
NIDR Director Assesses Evaluation Results and Makes Decision on Recommendations
Evaluation Results Disseminated to NIDR Staff

5. OUTCOMES OF AND BARRIERS TO PLANNING

A. OUTCOMES OF PLANNING

When planning within an organization is integrated with evaluation, operations, and budget activities as it is at the NIDR, one may expect that planning will have some discernable impact. At the NIDR, planning has had such an affect. For example, the identification of research needs and opportunities during the development of the first and second (current) NIDR Plans influences program emphasis and program development by identifying the directions that research may take. As with other BIDs that engage in this type of planning, the NIDR is able to pay some grants out of priority order based on a measurable relevance of the grant to research areas identified as high priority in the Plan.

Perhaps the most significant influence of planning at the NIDR results from the integrated relationship between planning and evaluation. Evaluation data are used in developing plans, and planning data and decisions are fed back into the evaluation process. For example, the evaluation of the Mineralized Tissue Pro- revealed that the program direction should be changed. This information was considered during the development of the current plan and reflected in the allocation of resources. Through the tracking of that program's progress toward meeting the recommendations in the plan, data will be fed back into the next evaluation of the program.

B. BARRIERS TO PLANNING

Because the NIDR is a small institute that has experienced a continuity of staff, the sometimes difficult task of planning is eased. Nevertheless, barriers do exist. In fact, the small size of the NIDR contributes to one identified barrier; often, demands on staff time for non-planning duties overwhelm the planning fucntion. This occurs at the OSAD level as well as on the program level.

This lack of time for planning may be partly to blame for the other perceived barrier to planning, i.e., that there is some resistance to planning on the part of some program staff.

To overcome these difficulties, the OSAD attempts to make the planning burden on program staff as small as possible and to spend as much time as possible performing planning activities.

6. SUMMARY, OBSERVATIONS, AND THE FUTURE

Planning at the NIDR evolved from evaluation. Indeed, the initial steps taken by the Institute to develop a long-range plan, i.e., the goals and objectives writing exercise, are the same first steps necessary to conduct a formal evaluation. Since those initial steps, the NIDR has produced two long-range plans and has formally evaluated three of their six categorical program areas.

This interrelationship between planning and evaluation is also reflected in the Institute's planning philosophy; planning is viewed as an adjunctive decision-making tool. Similarly, one of the NIDR's stated objectives is that planning be used to prepare guidance materials and criteria for re-evaluation of program goals and objectives.

Now that the second NIDR long-range plan is completed, the Institute plans to proceed with the remaining three formal program evaluations.

7. SOURCES OF INFORMATION

Data were gathered from written sources, including published documents as well as internal reports and memoranda, and from personal interviews with key DRS staff.

Personal Interviews:

Dr. Dushanka Kleinman, Special Assistant to the Director

Published Documents:

National Institute of Dental Research, Annual Report: Fiscal Year 1981, (no publication number) National Institutes of Health, Bethesda, MD.

National Institute of Dental Research, Photocopy of excerpt fromthe Annual Report: Fiscal Year 1982, National Institutes of Health, Bethesda, MD.

National Institute of Dental Research, Evaluation of the NIDR Craniofacial Anamolies Research Activities, Septembr 1981, National Institutes of Health, Bethesda, MD.

National Institute of Dental Research, Evaluation of the NIDR National Caries Program, Vol. 1-3. November 1979, National Institutes of Health, Bethesda, MD.

National Institute of Dental Research, Evaluation of the NIDR Periodontal Disease Research Activity, April 1976, National Institutes of Health, Bethesda, MD.

National Institutes of Health, Public Advisory Groups, NIH Publication No. 82-10, July 1982, U.S. Government Printing Office, Washington, DC.

National Institutes of Health, Division of Public Information, 1981 NIH Almanac, NIH Publication No. 81-5, Bethesda, MD.

National Institutes of Health, Office of Program Planning and Evaluation and Division of Research Grants, NIH Data Book: 1982, U.S. Government Printing Office, Washington, DC.

APPENDIX 1

ORIENTATION FOR
PRIMARY AUTHORS OF STATE-OF-THE-SCIENCE PAPERS

Orientation for Primary Authors of State-of-the-Science Papers

Charge:

To provide a draft document of the research area (See State-of-the-Science Paper Outline and Description of Components for specifics)

To submit the draft document to the Program staff for their review and subsequent circulation.

To meet with the formal reviewers and revise and finalize the paper.

To prepare 2-3 page abstract of the revised paper.

Reimbursement:

Reimbursement will be in the form of a personal services contract that will itemize all the tasks to be achieved.

Timetable:

To be specified by each Program.

Purpose of State-of-the-Science Papers:

First step in the process of developing a Five Year Long Range Plan for the NIDR.

The material provided within these papers will be reviewed, revised, and abstracted, and subsequently used in the Long Range Plan.

NIDR Long Range Plan: The major purposes of the Plan include:

1. an internal program planning document,
2. a means to stimulate research, and
3. an information base for NIDR constituents.

The targeted date for completion is January 1982.

State-of-the-Science Papers: A draft topic outline for the research area will be provided by the Program. Steps should be taken to assure the comprehensiveness of this topic outline. There is no page limit, however, a review paper is attached as an example of the degree of detail. References should be numbered within the text and listed in alphabetical order at the end of the text.

References must include name of author(s), with initial following surname; full title of article or book; for articles, abbreviated name of journal as explained in *Index Medicus*, with volume, inclusive page numbers, and year; and, for books, inclusive page numbers, city, publisher's name, and year of publication. The following examples illustrate frequently used forms:

1. GROSSHACKER, Q.T.: Oral Surgery in Relation to Philosophy. 3. The Ritual of Excision, *J Geol Med* 64:782-790, 1950.
2. PSEUDOMANN, D.; PHILEBITIN, M.A.; and PENDOMAST, W.T.: Dorsometric Analysis, 2nd ed., East Westchester, PA: Azimuth University Press, 1928, pp. 152-155. In: Statistics in Glucodontics, L. Pyowitz, Pittsburgh, PA: A.E. Neumann & Sons, 1959, p. 42.
3. CUTWELL, O.: X-ray Technics in Metregression. In: Review of Paleodontics, Vol. 2, S. Zimzim and R. Gillfish, Eds., Ashtabula, OH: Wine Press, Inc., 1956, pp. 184-219.
4. BRATWURST, S.J.: *Incidence of* Dipsococcus anomalies *in MacPherson's Disease*. Publication 123 of the Esoteric Institution of Washington, Washington, D.C.: U.S. Government Printing Office, 1948, p. 63.
5. RHESUS, M.: Simonization of the Lingual Surface. Unpublished Ph.D. dissertation, University of Academies, Bookend, OH, 1954, p. 134.
6. DRILBIT, F.M.: Metabolism of the Dental Bur and Algogenesis, *Arch Anal Dent:* In press.

In legends and footnotes to tables, this short form of reference must be used in parentheses: List author's initials before surnames; omit title of article or chapter, city and name of publisher of books. For example: "Q. T. GROSSHACKER, *J Geol Med* 64:782-790," "D. PSEUDOMANN, M. A. PHILEBITIN, and W. T. PENDOMAST, Dorsometric Analysis, 2nd ed., 1928, pp. 152-155." Webster's Third International Dictionary will be used as the authority for spelling of nonmedical terms. Where two plural forms are provided, the anglicized form will be used.

For anatomical nomenclature, Nomina Anatomica is the authority. Dorland's Illustrated Dictionary is also used.

An outline of the content areas and substantiating comments to be addressed follows:

I. Magnitude of the Problem

A general statement of the health, social and economic status of the population in regard to the disease(s)/approache(es) in question.

II. Nature of the Disease/Approach

A brief description of the key characteristics and components of the disease/approach.

III. Present Status

- o detailed assessment of the supporting knowledge base
- o identification of key accomplishments in the past 10 years

The following guidelines may be used for identifying key accomplishments:

- o The research (results) provided information or data which was needed for further growth in the area but was previously unknown.
- o The research had an important effect on the direction of research and development in the area which, in turn, proved to be important for approaching the goals and objectives of this area.
- o The research reported new data, new ways of looking at old data, new concepts, new drugs, new apparatus, or new techniques that either were essential to or greatly accelerated research and development in the field.
- o The research provided relevant information for another area of investigation.

The guidelines utilized to identify each key accomplishment should be indicated.

- identification of research gaps and questions/voids which may not be resolved until further basic research is accomplished.

  Consider areas in which there have been few or no key accomplishments.

- discussion of research progress within the last ten years.

  Consider whether the research in the area has resulted in significant scientific accomplishments, technological advances and/or a solid knowledge base. Utilize the information from the key accomplishments to substantiate your comments.

- discussion of factors that have stimulated or impeded research progress.

  Consider factors such as the available scientific knowledge, technology, scientific personnel and the application of knowledge/technology. For each factor which affected progress, please identify whether the factor stimulated and/or impeded progress. Include a discussion of specific aspects which had an effect (e.g. numbers of developmental biologists, specific instrumentation needs, etc.), why these aspects more or less were important effectors of progress, and whether these specific aspects stimulated or impeded progress.

- o discussion of contribution of research to general biomedical research.

  Identify aspects of research (e.g. scientific knowledge, technology, scientific personnel, etc.) which have contributed to/impacted upon other research; the fields or areas (e.g. plastic surgery, biochemistry, medical genetics, etc.) upon which these have had the greatest effect; and the evidence (e.g. professional literature, scientific personnel, contributing knowledge) indicating this effect.

IV. Future Research Needs and Promising Opportunities

- o discussion of research areas that should receive increased/decreased emphasis (1983-87)

  Areas of increased emphasis should include research opportunities which will provide information/data which is essential for future research development in the area; fill existing knowledge gaps; or should appear promising but are in very preliminary stages of development.

  Areas of de-emphasis should include areas which are only peripherally related to the current and future research directions of the field in general; areas in which few or no significant results are anticipated ("blind alleys"); or areas in which the potential benefits are very long range and which are dependent on substantial gains in other areas of study before they can be initiated.

Provide a rationale for the selection of each research area to receive increased/decreased emphasis.

- o suggestion of <u>strategies and resource needs to be emphasized</u> (1983-87)

  Discuss the strategies or methods that you would suggest for achieving the research areas to be emphasized. Consider strategies within the following categories: knowledge base, technology, scientific personnel and application of knowledge/technology.

  Consider resource needs (e.g. manpower, training, budget, equipment, research facilities) needed to accomplish the research areas to be emphasized.

APPENDIX 2

ORIENTATION FOR
REVIEWERS OF STATE-OF-THE-SCIENCE-PAPERS

Orientation for the Reviewers of the State-of-the-Science Papers

Charge: To provide a review of the draft state-of-the-science paper.

To specifically identify areas that are missing that should be added; discuss areas that require further emphasis; make changes, corrections, or any other comments.

To prepare the comments into a written referenced report.

To meet with the primary author(s) and revise and finalize the paper.

Additional orientation comments for the reviewers should remain the same as for the primary authors with appropriate minor changes.

APPENDIX 3

GUIDELINES FOR COMPLETING RECOMMENDATION SUMMARY FORMS

GUIDELINES FOR COMPLETING RECOMMENDATION SUMMARY FORMS

Complete one form for each recommendation which you have identified from the state-of-the-science paper.

1. Relevant Program Component -- Please indicate the relevant program component to which the recommendation relates. Recommendations generally should be directed at a level below the goal, but not at a project-specific level (subgoal, objective).

2. Recommendation -- Briefly state the recommendation. This statement should indicate the area of research that requires emphasis in addressing the relevant Program component. Specify the desired "action" (e.g., "to identify," "to characterize," etc.).

3. Key Scientific Strategies -- In this section, indicate strategies/needs which are prerequisite or critical to successful implementation of the recommendation. Activities may include:

   - Scientific strategies which may reflect knowledge or technological needs, cross-disciplinary inputs, etc.

   - Resource needs which may include financial, manpower, facility or other related needs.

4. Rationale -- Since recommendations are drawn from the state-of-the-science, the rationale for the recommendation should be included in the state-of-the-science paper. In this space, please indicate the page number(s) and paragraph(s) in the paper which provide the basis for the recommendation.

5. Timeframe -- Please indicate the timeframe (less than 5 years, greater than 5 years) in which key scientific results, which will contribute to progress toward the program component, can be expected. In many cases, research may produce preliminary results within a one to two year period although the most significant results may be available after 5 years. In such a case, indicate that major results are expected in the long-term.

Recommendation ___ ___

PLANNING RECOMMENDATIONS

NIDR PROGRAM	☐ Periodontal Diseases Program ☐ Craniofacial Anomalies Program ☐ Soft Tissue Stomatology and Nutrition Program ☐ Dental Research Centers ☐ National Caries Program ☐ Restorative Materials Program ☐ Pain Control and Behavioral Studies Program
1. RELEVANT PROGRAM COMPONENT (e.g., for the National Caries Program - Strategy I, Research Area Pathophysiology/ Etiology)	
2. RECOMMENDATION (Clearly delineate research areas that require emphasis in addressing the relevant Program component; minimize overlap with other recommendations)	
3. KEY SCIENTIFIC STRATEGIES (Identify the scientific strategies and resource needs that are needed to carry out the recommendation)	

4. RATIONALE FOR THE RECOMMENDATION (Provide the justification or need for the recommendation - refer to page number and paragraph of Paper)	
5. TIME FRAME OF RECOMMENDATION (Indicate when results of research may be expected)	☐ Short Term < 5 years ☐ Long Term > 5 years

6. COMMENTS

AUTHOR/REVIEWER NAME _____

STATE-OF-THE-SCIENCE
PAPER TITLE _____

APPENDIX 4

DRAFT PLAN OUTLINE

NIDR Long Range Plan Document
Outline

Preface: Background on NIDR (mission, legislative mandate, organization, history)*

Executive Summary:
Research Priorities

Introduction: Rationale for plan; planning, implementation and evaluation process; history of planning at the NIDR

Chapter I. THE BROAD VIEW

A. Scope and Magnitude of the oral diseases and disorders problem
B. Importance of oral health
C. General review of research management and how the ultimate goal of disease prevention is pursued.

Chapter II. THE DISEASES AND DISORDERS

A. Introduction/Overview

1. Key accomplishments of the NIDR
2. Impact on public's health; general biomedical research; dental education; dental practice

B. Caries

1. State-of-the-Science Abstract
   a. Etiology
   b. Diagnosis
   c. Treatment
   d. Prevention

2. Key accomplishments

3. Research Goals + Objectives
   (identified from draft research goals and objectives)

4. Research Recommendations
   a. Types of groupings of projects (recommendations) abstracted from state-of-the-science papers that fall into the categories of research goals + objectives mentioned in II.B.3. above.

* Could be presented as a "Statement of the Director"

b. Strategies to accomplish research recommendations (abstracted from state-of-the-science papers)

C. Periodontal Diseases**

D. Cleft Lip/Cleft Palate and Other Congenital Anomalies

E. Dentofacial Malrelations

F. Acquired Oral Facial Defects

G. Oral Cancer, Herpes Simplex Virus, Aphthous Ulcers and Other Soft Tissue Diseases

H. Chronic and Acute Pain

Chapter III. A SEARCH FOR KNOWLEDGE

A. Introduction/Overview

1. Focus on ultimate goal of disease prevention
2. Stress the need for a critical mass of basic science research activities
3. Emphasize the need to improve the treatment of the caries problem today

B. Salivary Gland Research

C. Mineralization

D. Nutrition

E. Behavioral Studies

F. Restorative Materials

Chapter IV. RESOURCES FOR FUTURE DIRECTIONS

A. Introduction/Overview

1. Describe current organization of NIDR
2. Emphasize the functions and roles of the major components (intramural, extramural, centers)

B. Manpower

C. Training

D. Research Facilities

E. Budget

F. Management issues

**II.C-H can be organized the same as II.B.

Appendices:

1. Description of the development of the Plan
2. Long Range Plan Coordinating Committee members
3. State-of-the-Science consultants + papers
4. Other documents used in preparation of the Plan.

DENTOFACIAL MALRELATIONS

I. MAGNITUDE OF THE HEALTH PROBLEM

Dentofacial malrelations may be defined as structural and/or functional abnormalities involving the teeth and bones of the face. It has been conservatively estimated that 29 percent of the U.S. population is affected by dentofacial malrelations that warrant treatment;[1] other estimates have placed this figure at 30 to 40 percent. Based on the latter estimate, there are approximately 1 million new cases yearly. Of these new cases, more than half involve malocclusions for which treatment is required or highly desirable. Afflicted individuals not only suffer from the abnormal form of structures, but may also experience psychosocial difficulties; impairment of mastication, speech, respiration, and swallowing; and other types of dysfunctions.

II. STATE OF THE SCIENCE

A 1976 report by a National Research Council committee estimated that approximately five percent of children have such a severe malocclusion that it handicaps them physically and psychologically. This group suggested that research to develop a valid and useful "index of malocclusion and self-image" was needed, and that multi-disciplinary case studies be carried out to provide the groundwork for developing such an index. Epidemiologic studies have provided clear documentation of the magnitude of the problems of malocclusion and dentofacial deformity in the U.S. population; however, this remains an important area for further investigation.

Although it seems likely that genetic influences are important in the etiology of malocclusion, the multi-factorial nature of inheritance of dentofacial characteristics makes genetic analysis difficulty. As a consequence, work in this area has not been particularly fruitful. Similarly, although it is probable that relatively minor early deviations from normal development could lead to malocclusion and/or dentofacial deformity in later life, current research emphasis in embryology and pre-natal development is related largely to the major craniofacial anomalies. Most research on the etiology of dentofacial problems is related to the effects of environmental and developmental factors. Excellent progress has been made in the past decade towards a better understanding of environmental influences such as trauma, habits and posture which can influence jaw growth and tooth position.

Research on prevention and interception of malocclusion has focused on controlling environmental factors. It appears clinically that there are deleterious effects from oral rather than nasal respiration. This has inspired efforts recently to document the effects of different respiratory patterns on facial development, while controversy about the importance of this factor has continued. The effectiveness of preventive and interceptive treatment modes has been examined and evaluated, verifying that about 15 percent of U.S. children (a smaller number than previous estimates) might benefit from such treatment.

Since large numbers of patients require and receive treatment for both malocclusion and dentofacial deformity, it is appropriate that research aimed at improving diagnosis and treatment has been a prominent part of efforts in this field. Early treatment for growth modification has been widely studied, using both rat and primate animal models and direct clinical studies of children. The mechanical effects of orthodontic force have been clarified, and basic work in cellular response to mechanical stimuli has allowed a better understanding of the link between application of orthodontic force and the biologic response. New orthodontic materials and techniques have been widely applied, leading to considerable improvements in clinical efficiency. Tremendous progress in correlating the surgical and orthodontic treatment of dentofacial deformity has occurred, with significant contributions from primate studies and human investigations. Finally, psychological studies of the impact of dentofacial deformity have been undertaken, and for the first time, this relatively unexplored field is being developed.

III. KEY ACCOMPLISHMENTS

As a result of the research that has been done, an improved knowledge of dentofacial growth and development has been achieved, as well as significant advances in diagnosis and treatment. The following key accomplishments have provided a better understanding of dentofacial malrelations:

- Development and application of new methodologies for studying facial growth and tooth movement, including mathematical modeling, stereometry, metallic implants, and laser holography.

- Identification of the interrelationship between neuromuscular modification and alteration of facial growth and the developing dentition.

- Identification of developmental aspects of bone formation, such as the role of proteins of the organic matrix in the mechanism of mineralization of bone and dentin.

- Identification of biochemical and biomechanical aspects of tooth eruption and bone remodeling.

- Development of methods for assessing subjective perceptions of malocclusion and psychosocial factors related to malocclusions, although application of these methods has been minimal.

- Determination of the effects of changes in blood supply on the surgical management of dentofacial malrelations.

- Elucidation of changes following orthodontic and surgical correction of dentofacial malrelations.

Studies of bone formation and resorption, the interplay among the various tissues involved in growth and development, and the relationships for form and function have contributed to the general understanding of these processes. Contributions have been made to biomedical research in osteopetrosis and fracture healing by basic biological research and genetic studies of various morphologic traits.

IV. RESEARCH OBJECTIVES

The research objectives for dentofacial malrelations are to:

- Determine the nature, prevalence, and severity of dentofacial malrelations and to characterize the basic processes involved in normal dentofacial development as well as the causes of dentofacial malrelations.

- Develop the means to prevent or intercept the development of, and to develop and improve measures for the diagnosis and treatment of dentofacial malrelations.

V. RESEARCH RECOMMENDATIONS

The research recommendations for the next five years emphasize the following areas and strategies necessary to accomplish these recommendations.

A. Research Areas

- Epidemiologic studies on the need for orthodontic treatment and the effectiveness of treatment.

- Studies aimed at identifying etiologic factors with an emphasis on the interaction between genetic and environmental factors.

- Studies of interceptive treatment aimed at growth modification.

- Clinical trials in humans of treatment procedures developed in lower animals.

B. Research Strategies

- Increase the investigator base with an emphasis on training programs in applied research with an interdisciplinary focus.

- Continue basic science research with a focus on craniofacial growth and mechanisms leading to dentofacial abnormalities and the regulation of bone remodeling in response to the application of forces during treatment.

- Continue the support of information exchange mechanisms, such as workshops and conferences, to more rapidly apply research findings and techniques.

- Develop new and innovative techniques and methodologies, stressing the development of animal models necessary for the advancement of orthodontic and surgical treatment.

SUMMARY FACTUAL DESCRIPTION OF THE PLANNING PROCESSES OF THE NATIONAL EYE INSTITUTE

"STUDY OF THE PLANNING PROCESSES AT NIH"

NIH Contract Number 1-OD-2-2122

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1. THE NATIONAL EYE INSTITUTE: ITS MISSION AND ORGANIZATION

The National Eye Institute (NEI) is one of eight Institutes which, along with four Bureaus, and six research and support Divisions, make-up the National Institutes of Health (NIH).

A. MISSION

Created in 1968 through P.L. 90-489, the mission of the NEI charges the Institute to find new ways to prevent, diagnose, and treat diseases of the visual system, thus preventing, reducing, and possibly even eliminating blindness. Included in this mission is the mandate to conduct and support research for new treatment and cures and training related to blinding eye diseases and visual disorders. This includes research and research training in the special health problems and requirements of the blind and in the basic and clinic sciences relating to the mechanisms of the visual function and preservation of sight. There is no mandate for non-professional education, but the NEI also participates in these types of educational activities through information dissemination.

B. NEI PROGRAMS

The NEI conducts and supports research and research training in five areas:

1. Retinal and Choroidal Diseases
2. Corneal Diseases
3. Cataracts
4. Glaucoma
5. Strabismus, Amblyopia, and Visual Processing

Research in these areas is conducted and supported through a variety of mechanisms. Specifically, the NEI:

- Supports (through grants, fellowships, and contracts to universities and other institutions) research and research training aimed at improving the prevention, diagnosis, and treatment of visual disorders;

- Conducts laboratory and clinical research in its own facilities and fosters statistical and epidemiological studies of visual disorders in human populations;

- Fosters research in the rehabilitation of the visually handicapped;

- Encourages the application of research findings to clinical practice through technology transfer activities;

- Heightens public awareness of vision problems through information dissemination;

- Cooperates with voluntary organizations which engage in related activities, such as the Juvenile Diabetes Foundation (the NEI collaborates with this group on visual complications of diabetes) and the National Society to Prevent Blindness and other such groups (with which the NEI cooperates to ensure non-duplication of effort and conduct collaborative activities); and

- Participates in the work of international organizations with programs and activities focused on the prevention of blindness.

The history of these research programs at the NEI is somewhat unique in that, unlike most other Bureaus, Institutes, and Division (BID's) of the NIH, the NEI intramural program was in place and functioning prior to the development of the extramural program. Currently, both programs engage in coordinated and integrated research efforts to fulfill the NEI mission.

C. ORGANIZATION

Organizationally, research in these areas is implemented through the intra- and extramural research programs and supported by the four NEI offices.

The Intramural Research Program includes three laboratories and one branch:

- The Laboratory of Vision Research
- The Laboratory of Sensorimotor Research
- The Clinical Branch
- The Laboratory of Molecular and Developmental Biology

In 1980, a total of 124 staff members were included in the Intramural Research Program; 87 professionals and 37 support personnel.

The Extramural and Collaborative Programs include --

- The Extramural Services Branch
  - Grants Management Section
  - Contracts Management Section
  - Program Information Section
- Anterior Segment Diseases Branch
  - Corneal Diseases Section
  - Cataract Section
  - Glaucoma Section
- Retinal and Choroidal Diseases Branch
- Strabismus, Amblyopia, and Visual Disorders

In addition to the Office of the Director, the NEI functions with three offices.

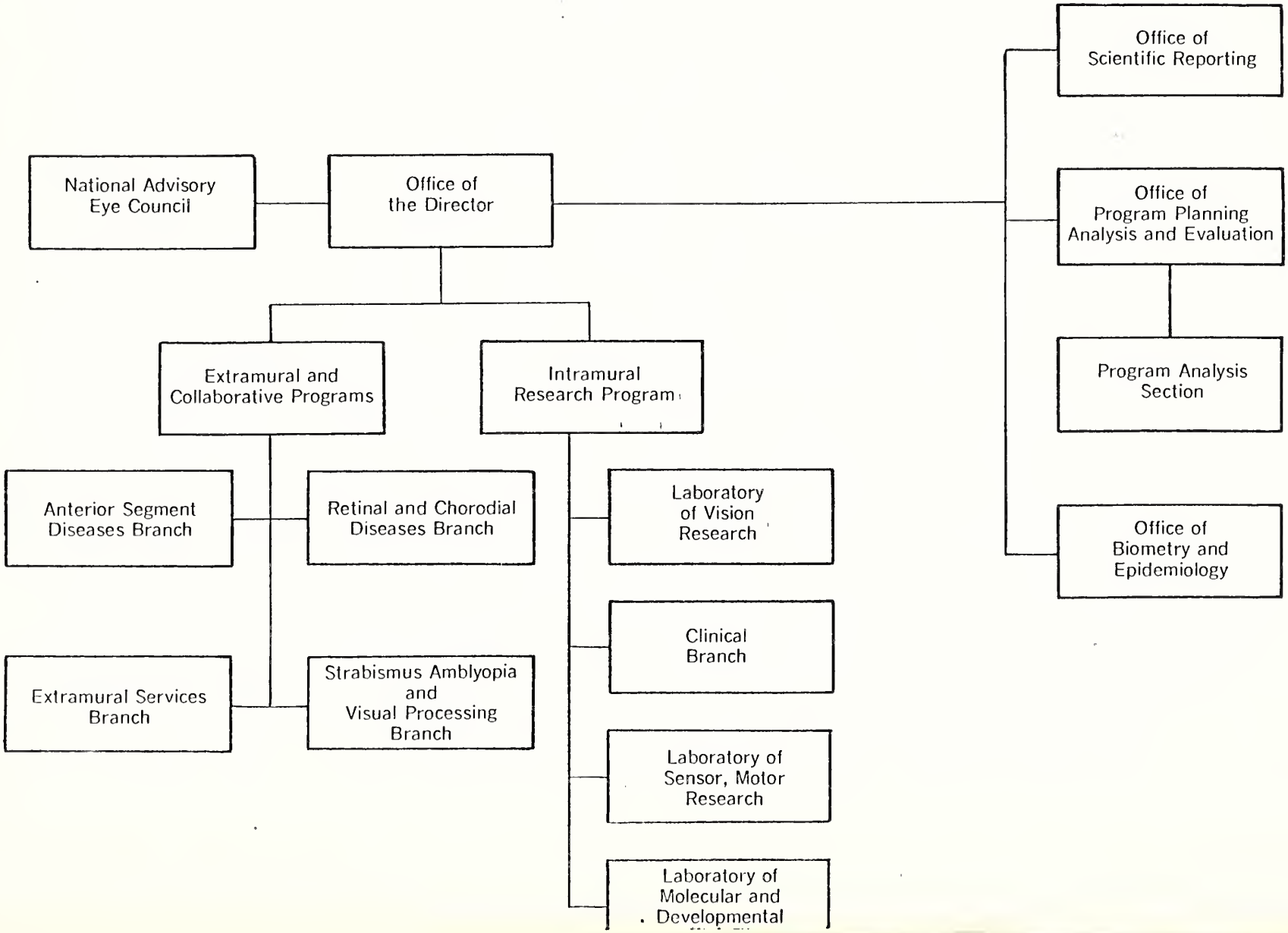
(1) The Office of Biometry and Epidemiology (OBE) plans, develops, and coordinates the Institute's program for mathematical and statistical study in the investigation of vision disorders. The OBE has three main functions: research, education, and consultation. Research is conducted through planning, developing, and carrying out studies on human populations concerned with the causation, prevention, and treatment of eye disease and vision disorders. The OBE carries out a program of education for the vision research community through workshops, publications, and a pre- and post-residency fellowship program for ophthalmologists. Consultation relevant to mathematical and statistical studies is provided to NEI intra- and extramural researchers and to vision researchers in the USA and international scientific communities.

(2) The Office of Scientific Reporting (OSR) plans, designs, carries out, and evaluates a comprehensive information program for the NEI and NIH staffs as well as providing liaison and information dissemination activities for professional organizations and lay audiences. The OSR engages in special prevention-oriented information campaigns for the general public and facilitates the communication of clinically applicable research results to appropriate audiences. In addition, the OSR is responsible for writing speeches for the NEI Director, conducting international meetings, and acting as media liaison for the Institute.

(3) The Office of Program Planning Analysis, and Evaluation (OPPAE) is described in Section 3 of this document.

Exhibit 1 is the organizational chart for the NEI.

Exhibit NEI-1
Organization of the NEI


National Advisory Eye Council
Office of the Director
Office of Scientific Reporting
Office of Program Planning Analysis and Evaluation
Program Analysis Section
Office of Biometry and Epidemiology
Extramural and Collaborative Programs
Intramural Research Program
Anterior Segment Diseases Branch
Retinal and Chorodial Diseases Branch
Extramural Services Branch
Strabismus Amblyopia and Visual Processing Branch
Laboratory of Vision Research
Clinical Branch
Laboratory of Sensor, Motor Research
Laboratory of Molecular and Developmental

2. OVERVIEW OF THE NEI PLANNING COMPONENT

A. THE ROLE OF PLANNING

Formal, systematic planning at the NEI was initiated by the two-day NEI Management Conference convened by the NEI Director in 1973. The purpose of this conference was to discuss important issues facing the Institute and to make some fundamental management and policy decisions concerning these issues. The conference included the NEI Director, the Chiefs of the Intramural Research Laboratories, the Associate Director for Extramural and Collaborative Programs, the Executive Officer, and the Information Officer.

Prior to this conference, the NEI had engaged in planning to the extent of participation in the annual NIH Research and NIH Evaluation Plans. However, there was no overall Institute strategy for program planning and development, and no central planning office or planning officer. In recognizing the need for more systematic planning, the NEI considered planning models in use at other NIH Institutes which had Congressional mandates for such planning, and adapted and added to these models to develop a model suitable to the needs of the NEI.

In so doing, the NEI decided on an approach that was derived from careful and detailed assessments of the extent of the disease problems, past accomplishments, current capabilities, research needs and opportunities, and the resources required for further advance. It was also determined that the scientific community must be involved in this planning and that a balanced approach, i.e., one that considered the needs of both scientists and program managers, was clearly needed.

Toward this end, the NEI Director asked the National Advisory Eye Council (NAEC) to assure the lead role in program planning at the NEI. The NAEC consists of 12 citizens who represent the fundamental and medical vision sciences, education, and public affairs. The Council advises, consults with, and makes recommendations to the NEI Director on the awarding of grants and a program and policy development. In response to the Director's request, the NAEC established

a Vision Research Program Planning Committee to conduct an extensive analysis of the NEI's current research program and formulate recommendations for its future development. With the establishment of this committee, the NEI's formal program planning process was initiated.

Since that time, two National Plans have been completed, and a third is nearing completion. The process used to develop the latest National Plan as well as the developmental processes for the NEI component of the Annual Research Plan and Evaluation Plan will be described in Section 4 of this report.

Overall, planning at the NEI serves as a formalized structure to assist management decision-making by providing valid information pertaining to research needs, opportunities, initiatives, and costs. Planning is more broadly viewed as a mechanism to plan entire programs, to determine trends, and to identify solvable problems within specific research areas. The process of developing the National Vision Research Plan also serves as a mechanism for conflict resolution as scientific experts come to consensus with respect to program priorities.

On the basis of this role, the objectives of planning at the NEI are as follows:

- To support the Director and his subordinate managers' decision-making
- To unify the scientific community
- To coordinate research
- To assist in determining budget allocations
- To identify needs
- To identify opportunities
- To select from among alternative initiatives
- To educate
- To promote fulfillment of the mission

B. KEY ACTORS

As stated earlier, the NAEC Program Planning Subcommittee provides the lead role for planning at the NEI. With respect to the National Plan, the NAEC --

- Has overall responsibility for advising the Directors of NEI and NIH on vision research program planning, and

- Reviews and approves Subcommittee draft reports prior to publication.

The NAEC and its Program Planning Subcommittee work in close collaboration with the NEI Director and staff. It is the Subcommittee, however, with the support of the NEI staff, which has the task of preparing the National Plan. The detailed analyses and assessments of program status and priorities are made by the Subcommittee's six Program Planning Panels (there is one Panel for each of the five major programs and one for research training). The Panels select additional consultants to assist them and provide the necessary expertise in areas of research within the major programs.

To ensure full Council participation, and for purposes of continuity and coordination, a Council member serves on each of the six Program Planning Panels. The NEI Extramural Program Directors serve as Executive Secretaries at the Program Planning Panel meetings, and the NEI Planning Officer attends some meetings of the Subcommittee and the Panels.

The four members of the Program Planning Subcommittee represent extramural grantees and constituent organizations. Their role includes the following responsibilities:

- Develop overall policies and goals of the Subcommittee.
- Evaluate the NEI's implementation of NEAC's recommendations.
- Analyze the scientific community's response to identified research opportunities.
- Identify emerging research areas that warrant added emphasis and study.
- Recommend research priorities, additional measures for implementation, and detailed and documented projected budgets.
- Select Panel Chairmen and approve Panel membership with the concurrence of the Director, NEI
- Prepare interim and final Subcommittee reports with assistance from NEI staff.
- Review the activities of the Panels.

A detailed discussion of the role of the NEI Planning Officer is provided in Section 3, which follows.

3. THE NEI OFFICE OF PROGRAM PLANNING, ANALYSIS, AND EVALUATION

A. ORGANIZATION

The formation of a central planning office, which is now called the Office of Program Planning, Analysis and Evaluation (OPPAE), resulted from the 1973 NEI Management Conference.

The OPPAE is composed of the Chief, two program analysts and one support position. All OPPAE staff members are involved in planning, but one program analyst also has a specific responsibility for evaluation and the other is primarily involved in program analysis.

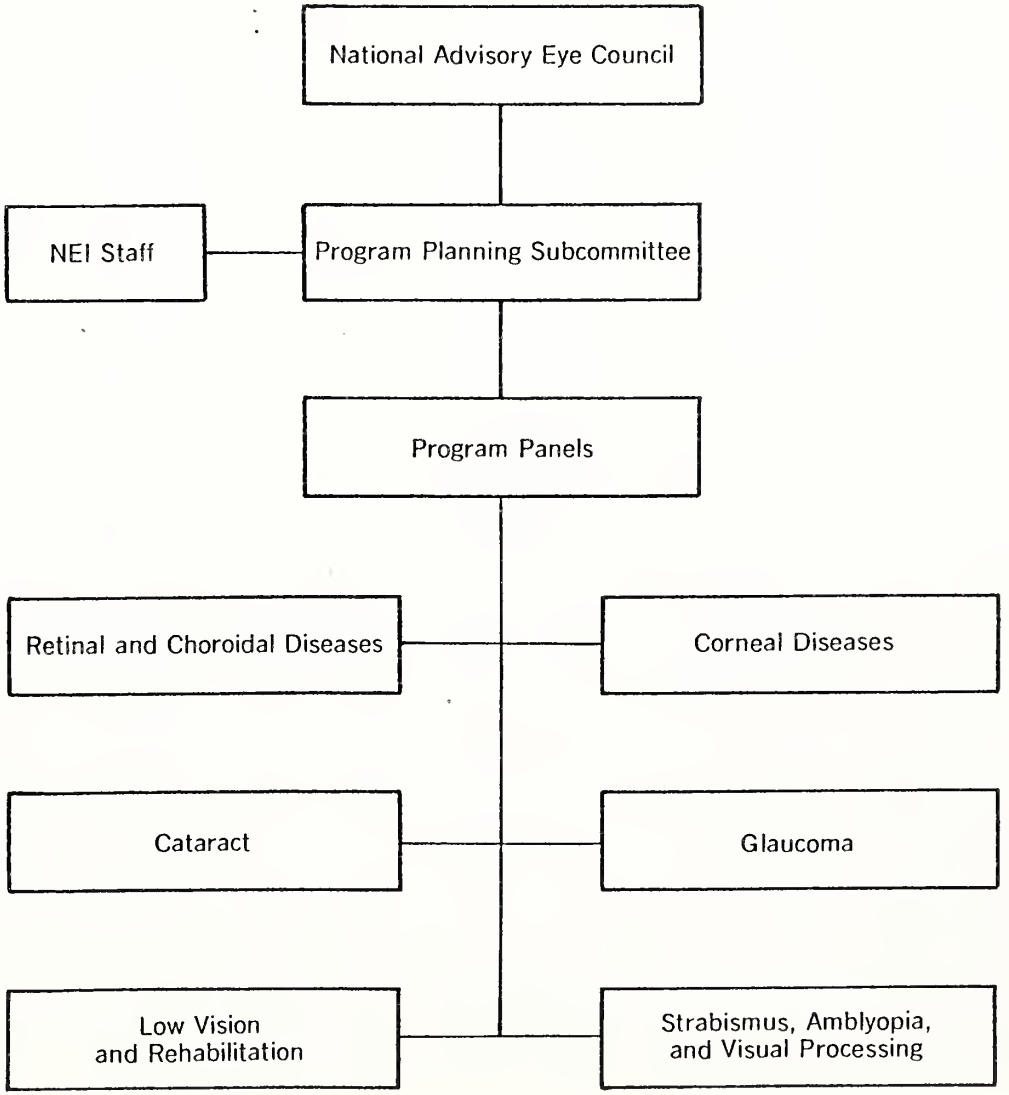
It should be noted that the OPPAE is one component of those involved in planning at the NEI. Exhibit 2 illustrates the overall organization of the planning group, which includes the NAEC Program Planning Subcommittee and the six Panels.

B. PLANNING FUNCTIONS

With respect to the National Vision Research Planning Process, the OPPAE --

- Develops planning strategies and methodologies, including facilitation of the development of consensus on priority setting, developing methods to increase the sophistication of the consensus development process, working with tentative budgets;
- Serves as central staff point for coordination of all Council planning activities;
- Arranges all meetings of the Program Planning Subcommittee, Panels, Subpanels, and Workshops, and provides for conference services;
- Assembles NEI program data and data from agencies other than NEI at the request of the subcommittee and NEI Director for review and analysis by Executive Secretaries. Provides the Subcommittee with data on disease prevalence, incidence, and economic and social costs; provides other research and reference sevices in areas not related to specific NEI programs or not covered by the Extramural Staff;

Exhibit NEI-2
NEI Planning Structure



- Has primary responsibility for all editorial aspects of the Subcommittee activities. Prepares interim and final Subcommittee reports under the direction of the Subcommittee Chairman and the Director, NEI;

- Prepares draft format for report for approval by Subcommittee and Director, NEI;

- Uses materials prepared by Workshops, Subpanels, Program Panels, and the Subcommittee to prepare sections of the plan;

- Develops schedules (timetables and flow charts) for the program planning process;

- Prepares, written and oral presentations concerning NAEC planning activities for NEI staff, Subcommittee members, or Program Panel Chairmen;

- Attends all meetings of the Subcommittee, and its Program Panels and Subpanels;

- Drafts other portions of the National Plan (such as the Volume I Introduction and Recommendations and sections on program planning) at the request of the Subcommittee;

- Disseminates the National Plan according to the direction of the Subcommittee and the NEI Director;

- Communicates activities of the Subcommittee to the OD:NIH and higher planning levels; and

- Serves as a central point for the dissemination to NEI staff and program planning participants of all pertinent materials related to program planning. Copies of all memoranda, letters, notes of telephone or inperson conversations, reports, and other material pertaining to the activities of the various planning groups are submitted to OPPSR for further dissemination and for purposes of maintaining a complete planning file.

C. OTHER MAJOR FUNCTIONS

In addition to planning functions, the OPPAE is responsible for --

- international health liaison;

- trans-NIH responsibilities (e.g., the Chief, OPPAE is also the Prevention Coordinator for NEI);

- review of "non-planning" manuscripts;
- participation in the NEI intramural research protocol committee;
- development and preparation of "non-planning" reports, responses to information requests; and
- coordination of the preparation and publication of the NEI Annual Report.

D. INVOLVEMENT OF THE OPPAE WITH OTHER OFFICES

Interaction between the OPPAE and other offices is of an informal nature; to the extent that inter-office information is needed by or requested from the OPPAE, there is interaction with other offices. Since the OPPAE oversees the NEI data base for the trans-NIH areas of nutrition and diabetes, there are periods of hightened interaction among offices.

4. DESCRIPTION OF SPECIFIC PLANNING PROCESSES

A. NATIONAL VISION RESEARCH (STRATEGIC) PLAN

The long-range research plan represents strategic planning at the NEI. Three national vision research plans have been prepared by the NEI: the first for the fiscal years 1976-1979, the second for 1978-1982, and the present plan for 1983-1987.

Vision Research - A National Plan: 1983-1987, is a multivolume report prepared by the National Advisory Eye Council, the principal advisory body to the National Eye Institute (NEI). The complete plan presents a comprehensive and detailed assessment of the current NEI program along with specific recommendations for its development over the next five years. These include program priorities and projections of resource requirements for each major area of vision research that the NEI supports. The plan's major sections are briefly highlighted here:

- Volume One-The 1983 Report of the National Advisory Eye Council (Background, Summary Panel Reports and Resource Requirements, Implementation Strategy, Cross-Cutting Research Areas and Issues, Planning Participants, Planning Strategy and Process).

- Volume Two-Reports of the Program Panels

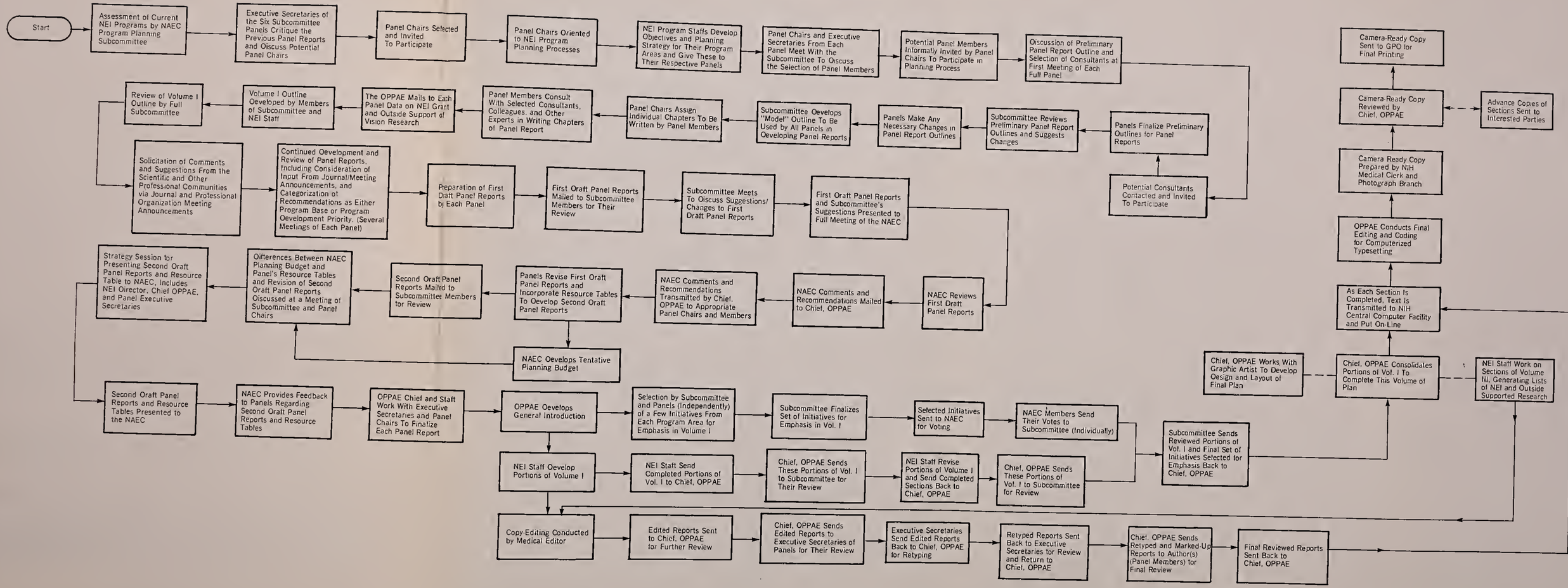
  Part One-Report of the Retinal and Choroidal Diseases Panel
  Part Two-Report of the Corneal Diseases Panel
  Part Three-Report of the Cataract Panel
  Part Four-Report of the Glaucoma Panel
  Part Five-Report of the Strabismus, Amblyopia, and Visual Processing Panel
  Part Six-Report of the Panel on Visual Impairment and Its Rehabilitation.

- Volume Three-Support for Vision Research (Data on vision research projects suported by the NEI in FY 1981 and by other government and private organizations in FY 1980).

1. Process for Developing the National Vision Research Plan

The steps in developing this plan are summarized below and on the flow chart which appears as Exhibit 3. It should be noted that these steps are intrinsically interactive, overlapping, and dynamic.

Exhibit NEI-3
Planning Processes for the Development of NEI Vision Research National Plan:1983-1987


Start
Assessment of Current NEI Programs by NAEC Program Planning Subcommittee
Executive Secretaries of the Six Subcommittee Panels Critique the Previous Panel Reports and Oiscuss Potential Panel Chairs
Panel Chairs Selected and Invited To Participate
Panel Chairs Oriented to NEI Program Planning Processes
NEI Program Staffs Develop Objectives and Planning Strategy for Their Program Areas and Give These to Their Respective Panels
Panel Chairs and Executive Secretaries From Each Panel Meet With the Subcommittee To Oiscuss the Selection of Panel Members
Potential Panel Members Informally Invited by Panel Chairs To Participate in Planning Process
Oiscussion of Preliminary Panel Report Outline and Selection of Consultants at First Meeting of Each Full Panel
Review of Volume I Outline by Full Subcommittee
Volume I Outline Oeveloped by Members of Subcommittee and NEI Staff
The OPPAE Mails to Each Panel Data on NEI Grant and Outside Support of Vision Research
Panel Members Consult With Selected Consultants, Colleagues, and Other Experts in Writing Chapters of Panel Report
Panel Chairs Assign Individual Chapters To Be Written by Panel Members
Subcommittee Oevelops "Model" Outline To Be Used by All Panels in Oeveloping Panel Reports
Panels Make Any Necessary Changes in Panel Report Outlines
Subcommittee Reviews Preliminary Panel Report Outlines and Suggests Changes
Panels Finalize Preliminary Outlines for Panel Reports
Potential Consultants Contacted and Invited To Participate
Solicitation of Comments and Suggestions From the Scientific and Other Professional Communities via Journal and Professional Organization Meeting Announcements
Continued Oevelopment and Review of Panel Reports, Including Consideration of Input From Journal/Meeting Announcements, and Categorization of Recommendations as Either Program Base or Program Oevelopment Priority. (Several Meetings of Each Panel)
Preparation of First Draft Panel Reports by Each Panel
First Oraft Panel Reports Mailed to Subcommittee Members for Their Review
Subcommittee Meets To Oiscuss Suggestions/ Changes to First Oraft Panel Reports
First Oraft Panel Reports and Subcommittee's Suggestions Presented to Full Meeting of the NAEC
NAEC Reviews First Oraft Panel Reports
NAEC Comments and Recommendations Mailed to Chief, OPPAE
NAEC Comments and Recommendations Transmitted by Chief, OPPAE to Appropriate Panel Chairs and Members
Panels Revise First Oraft Panel Reports and Incorporate Resource Tables To Oevelop Second Oraft Panel Reports
Second Oraft Panel Reports Mailed to Subcommittee Members for Review
Oifferences Between NAEC Planning Budget and Panel's Resource Tables and Revision of Second Oraft Panel Reports Oiscussed at a Meeting of Subcommittee and Panel Chairs
Strategy Session for Presenting Second Oraft Panel Reports and Resource Table to NAEC, Includes NEI Oirector, Chief OPPAE, and Panel Executive Secretaries
NAEC Oevelops Tentative Planning Budget
Second Oraft Panel Reports and Resource Tables Presented to the NAEC
NAEC Provides Feedback to Panels Regarding Second Oraft Panel Reports and Resource Tables
OPPAE Chief and Staff Work With Executive Secretaries and Panel Chairs To Finalize Each Panel Report
OPPAE Oevelops General Introduction
Selection by Subcommittee and Panels (Independently) of a Few Initiatives From Each Program Area for Emphasis in Volume I
Subcommittee Finalizes Set of Initiatives for Emphasis in Vol. I
Selected Initiatives Sent to NAEC for Voting
NAEC Members Send Their Votes to Subcommittee (Individually)
Subcommittee Sends Reviewed Portions of Vol. I and Final Set of Initiatives Selected for Emphasis Back to Chief, OPPAE
NEI Staff Oevelop Portions of Volume I
NEI Staff Send Completed Portions of Vol. I to Chief, OPPAE
Chief, OPPAE Sends These Portions of Vol. I to Subcommittee for Their Review
NEI Staff Revise Portions of Volume I and Send Completed Sections Back to Chief, OPPAE
Chief, OPPAE Sends These Portions of Vol. I to Subcommittee for Review
Copy-Editing Conducted by Medical Editor
Edited Reports Sent to Chief, OPPAE for Further Review
Chief, OPPAE Sends Edited Reports to Executive Secretaries of Panels for Their Review
Executive Secretaries Send Edited Reports Back to Chief, OPPAE for Retyping
Retyped Reports Sent Back to Executive Secretaries for Review and Return to Chief, OPPAE
Chief, OPPAE Sends Retyped and Marked-Up Reports to Author(s) (Panel Members) for Final Review
Final Reviewed Reports Sent Back to Chief, OPPAE
Chief, OPPAE Works With Graphic Artist To Develop Oesign and Layout of Final Plan
Chief, OPPAE Consolidates Portions of Vol. I To Complete This Volume of Plan
NEI Staff Work on Sections of Volume III, Generating Lists of NEI and Outside Supported Research
As Each Section Is Completed, Text Is Transmitted to NIH Central Computer Facility and Put On-Line
OPPAE Conducts Final Editing and Coding for Computerized Typesetting
Camera Ready Copy Prepared by NIH Medical Clerk and Photograph Branch
Camera-Ready Copy Reviewed by Chief, OPPAE
Advance Copies of Sections Sent to Interested Parties
Camera-Ready Copy Sent to GPO for Final Printing

The planning process begins with an assessment of current NEI programs. The NAEC Program Planning Subcommittee (hereinafter referred to as the Subcommittee) meets to discuss tracking the responses of researchers to the recommendations of the previous plan, and to assess past program performance and current support of vision research. In addition, the Subcommittee discusses the guidelines for the individual program plans and the selection of Panel Chairs.

The NEI extramural program directors then develop critiques of previous panel reports. The purpose of this analysis is to help identify areas that warrant the particular attention of the soon to be selected Panel Chairs and Panel Members. The initiation of this analysis is based on the assumption that some portions of the previous panel reports are likely to be outdated; in other sections, significant areas of research may have been either overlooked or not anticipated at the time the report was written. It is also assumed that there are new research advances to report in certain fields and a need to identify those research priorities which have either been accomplished or which no longer seem promising. A checklist is provided to the extramural program directors and included here as Appendix 1. This is meant to stimulate the program director's thinking rather than to be used as an exhaustive list of questions.

Concurrently, the candidates for Panel Chairs are suggested and discussed by the Chair of the NAEC Program Planning Subcommittee, the Chief of the NEI:OPPAE, and the NEI Director. A final slate of nominations is agreed upon by these individuals and submitted for review by the full subcommittee. The final selection is made through a consensus of the subcommittee, with the NEI Director having ultimate decision-making authority.

A letter of invitation to participate in developing the Plan is sent to each selected Panel Chair or (Co-Chair for those panels served by two chairs). The potential chairs are provided the following information:

- That they will be responsible for nominating a panel of up to ten (10) experts with the objective of gaining a "broad yet insightful" approach.
- That they should give consideration to including on each panel at least one (1) epidemiologist and one (1) person who may not have been trained in vision research but who can provide a valuable perspective from a related scientific field (e.g., genetics, immunology, or biophysics).

- Profiles of current NEI and other Federal and private supporters of research; analyses of the current status of research areas and policies; an accounting of progress implementing the recommendations in the previous plan; and guidance on the required format, process, timetable, and logistics for developing the panel reports.

- An NEI extramural program director will serve as Executive Secretary for each panel.

- A tentative agenda for the Subcommittee meeting with the newly-selected Panel Chairs.

- Data on how well NEI grants for the past two (2) fiscal years match the priority recommendations in the current planning report.

- The checklist used by the NEI Extramural Program Directors in reviewing and critiquing the existing panel reports.

Once the Panel Chairs are selected, the Subcommittee meets with them to orient them to the NEI planning process. This meeting of the subcommittee includes the Panel Chairs, the Panel Executive Secretaries, and other NEI program and planning staff. The purpose of this meeting is to provide the new Panel Chairs an overview of the NEI's program plann discuss general approaches, and to identify broad topics and issues that will require addressing in some detail in the future.

Based on the discussions during the Panel Chair orientation meeting, the NEI program staffs develop a list of goals and objectives and a proposed planning strategy for their program which can be used by each panel.

The Subcommittee meets individually with each Panel Chair and Executive Secretary. The primary purposes of this meeting are to --

- nominate panel members
- discuss, in broad terms, the scientific areas that the panels will address; and
- review the planning process.

Panel Chairs then informally invite potential panel members to serve on their panels; those who accept are sent a letter of confirmation by the Chief, OPPAE. Each panel (Chairs, Executive Secretary, NEI staff, and the newly selected

panel members) then meet to plan for the development of the subprogram and full panel reports. These meetings are attended by the Chief, OPPAE and his staff, extramural program directors who serve as the Executive Secretaries of the Panels for their respective programs, and the NEI Director and other senior staff members on an ad hoc basis. If possible, the Chair and/or members of the Subcommittee attend the first meeting of each panel.

Appendix 2 represents a typical agenda for this meeting, which usually lasts two days. The focus of this meeting is to orient the new panel members to the NAEC:NEI planning process. A formal charge (included as Appendix 3) and tentative timetable are presented to the Panels. In addition, this meeting provides the opportunity for Panel review of the current program structure. Any changes the Panel would like to make are communicated to the NEI Director through the extramural program staff. Before the Panel meeting is adjourned, the Director decides whether to accept the changes. Of note are those agenda items discussed below which initiate new processes.

- The discussion on the development of the preliminary outline for the new panel report (agenda item six) begins the process of developing subprogram reports in specific research areas.
- The identification of possible consultants begins the process of selecting consultants and defining their roles.

Each panel develops an outline for the subprogram reports which are to be prepared by panel members and consultants. (The subprogram reports will ultimately be combined to form the Panel Reports.) These outlines are then submitted to the Subcommittee for their review. The Subcommittee then meets with each individual panel chair to discuss and possibly modify the outlines. When all of the outlines have been presented to the Subcommittee and revised (if necessary) the Subcommittee develops a "model" outline to be used by all panels. The model outline developed for the FY-83-87 subprogram reports is included as Appendix 4. The major categories are as follows:

- Introduction
- Subprogram Objectives
- Overview of Current Research Support
- Recent Accomplishments
- Research Needs, Opportunities, and Possible Approaches
- Priorities
- Resource Requirements
- References

The Panel Chairs then assign individual Panel member(s) to write chapter(s) discussing each subprogram and area according to the model subprogram report outline. Panel members consult with selected consultants, colleagues, and other experts to ensure that no important aspect of research in their area has been overlooked.

Subsequent to this meeting, the OPPAE mails to each member, data on the NEI grants awarded in the fiscal years covered by the previous National Plan. These are used by the Panels to determine how closely the actual awarding of grants followed the previous Panels' recommendations.

In addition, Panels are sent information concerning vision research supported by other public and private agencies that relate to the goals and interests of the NEI program. The Panels use this information to insure against needless duplication between NEI and other agency support.

The next step in the process is the development of a Volume One outline. The Subcommittee is the group that has primary responsibility for preparing Volume One of the Plan, but the NEI planning and program staffs also have input. The draft outline is presented, discussed, and modified at a meeting of the Subcommittee, the full panels, and the NEI staff. Appendix 5 represents a first draft of the Volume One Outline.

In order to solicit comments and suggestions from a broader group than the NAEC, Panels, and consultants, the OPPAE Chief prepares an announcement for publication in professional journals and in other publications whose readers may be interested in vision research. A draft of this announcement appears as Appendix 6. In broad terms, the announcement asks for input concerning --

(1) what diseases are considered in greatest need of research;

(2) what current areas of basic and applied vision research offer the best hope for significant advance (not necessarily clinical breakthrough) over the next seven years;

(3) what new research techniques should be more widely applied and/or further developed;

(4) what new controlled clinical trials of new therapeutic or diagnostic techniques the NEI should support;

(5) what research problems might best lend themselves to a multidisciplinary research center approach;

(6) what specific needs there are for research training;

(7) what information from other fields of biomedical research might be applicable to studies of the visual system; and

(8) what new programs and policies the NEI should consider to help it carry out its mission to improve the nation's visual health.

In addition to such journal announcements, the NEI planning staff arranges presentations, booths, poster exhibits, etc. at the annual meetings of their constituent organizations. For example, Appendix 7 is a sample of a multipanel exhibit which the NEI displays at the annual meeting of the Association for Research in Vision and Ophthalmology.

The subprogram reports are developed and reviewed through ongoing panel meetings over the next eight to twelve months. Each meeting addresses separate elements of the planning process; these become the format for the subprogram reports and, ultimately, the panel reports. Specifically, panels attempt to --

- define the problem and describe the program
- establish program goals and objectives
- assess current research support
- review accomplishments
- document current needs and examine options for fulfilling them
- determine priorities
- estimate resources for program development

At these meetings, revised drafts of the report are discussed and revised several times, and eventually a consensus is arrived at by the Panel members. The Panels then group their recommendations according to two categories which together encompass all the research supported by the NEI:

- Program Base: Research areas that should continue to be supported essentially at current levels of activity for the next five years.
- Program Development Priorities: Research areas that warrant new or added support for the next five years.

In selecting the recommended program priorities, the Panels take into account the public health impact of each major visual disorder; review the extent and nature of relevant research support by the NEI and other public and private agencies; and judge, according to specified criteria, whether additional funding and research effort in a specific area will likely lead to significant progress toward the solution of the problem in a relatively short time.

The Panel Chairs and members then combine and consolidate the individual subprogram reports into one panel report. These first draft panel reports are then mailed to members of the Subcommittee and selected NEI staff for their review. Suggested changes are discussed at a meeting of the Subcommittee which is usually held the day before a regularly scheduled meeting of the full NAEC. The Subcommittee Chair reports on these drafts to the full NAEC on the following day. Subsequently, all NAEC comments and recommendations are transmitted by the Chief, OPPAE to the appropriate Panel Chair and members.

The panels then make the necessary revisions in the first draft and prepare the final draft for review. At this time, the panels complete Resource Tables (budget projections developed by the planning panels), a sample of which is shown in Appendix 8. These tables show the number of research project grants (ROIs) funded by the NEI in the most recent Fiscal Year which are relevant to the new research priorities recommended by the five program planning panels. (Grants that are not relevant to one of the priorities are grouped in each subprogram under "Other"). The research priorities listed on these tables correspond on a one-to-one basis to those included in the draft panel reports, but they have

been abbreviated considerably for convenience. The tables also contain the panel members' recommendations for the number of grants they would like to see funded in each of these priority areas by the first Fiscal Year of the Plan. Using estimates of the average cost of grants for each program the approximate total costs of effecting the panels' recommendations are computed. All data are summarized by subprogram and program.

The second draft panel reports are then reviewed by the Subcommittee in the same manner as the first review. To assist in this review, the OPPAE Chief provides reviewers with the following criteria:

- Do the reports provide a philosophical as well as a scientific framework to guide NEI's future support of vision research?
- Is each segment accurate in assessing the current state of research?
- In each section, is the material that follows each subheading appropriate, comprehensive, and up-to-date?
- Are program objectives properly stated and are the subsequent sections consistent with these objectives? For example, are there objectives listed for which no research opportunity exists; conversely, are there needs and opportunities listed in areas not encompassed by the stated objectives?
- Do the reports look forward to exploiting new or emerging scientific techniques for the advancement of vision research?
- Are opportunities for clinical research training clearly delineated?
- Do the reports discuss specific opportunities for new clinical trials?
- Are priority areas emphasized in proportion to both the needs and opportunities for research in the field?
- Are priorities and recommendations boldly stated rather than being a mere catalog of needs?
- Are proposed numbers of projects and budgets justified by the preceding text?

The next step in the process is the development by the NAEC of a tentative planning budget. The Council's preliminary target budget, which is used as a guide for planning panels, is updated to encompass recently revised projections of the average cost of grants in the first fiscal year of the Plan and to include other adjustments based on the current budget situation. These tables, and particularly the research grant line in each program, are compared with the Resource Tables (which are established not by a formula but rather by the panel members' perceptions of the needs and opportunities in the field). The panels, however, are mindful of the Council's previous tentative planning budget in preparing their own recommendations.

The differences between the Council's target budget for each program and the planning panel's budget projections are discussed at a Subcommittee/Panel Chairs meeting.

The NEI Director, OPPAE Chief, and Extramural Program Directors then conduct a strategy session for the new plan. This session is held in advance of the full NAEC meeting at which the second drafts of the panel reports and the panels' program priorities and project/budget recommendations are discussed.

The second draft panel reports are then presented to the NAEC. This presentation allows the Panels, Subcommittee, NEI staff, and NAEC membership the opportunity to discuss any proposed modificcations to the second draft panel reports. Particular attention is given to the Resource Tables, which will form the basis for the NAEC's final recommended planning budget. The NAEC may ask the Panels to consider other cutting or increasing their projections in specific areas. Depending on the extent of NAEC comments, the Panels may either meet one final time or respond by means of a conference call. In some cases the final resolution of differences between the NAEC and the Panels may be delegated to the Panel Chair.

Over the next several months, the Chief, OPPAE, and his staff work with the NEI extramural Program Directors and Panel Chairs and members to complete the Panel reports.

A general introduction is developed according to the guidelines in Appendix 9. Generally, the introduction provides a description and summary of the major disorders or research areas encompassed by the program as a whole. The remaining sections address program goals; an overview of current research support; recent accomplishments; research needs, opportunities, and possible approaches; research training needs; priorities; and resource requirements.

A few priorities (initiatives) for each NEI program are selected for emphasis in Volume One. Members of the Subcommittee are asked to rank according to importance what they believe are the top ten Program Development Priorities in the Retinal and Choroidal Diseases and the Strabismus, Amblyopia, and Visual Processing programs and the top six in the other programs. The Subcommittee members are asked to put a number from 1 to 10 (or 1 to 6) in the margin of each program's priority lits. In making their choices, they are given the option to combine two or more related priorities into one general statement and are asked to keep in mind the need to attain a proper balance between basic and clinical research.

In the meantime, the NEI Extramural Program Directors also make lists in consultation with representatives of the program panels and other subject matter experts on the Council. These will be sent to the Subcommittee and the Subcommittee is asked to develop a single list of candidate priorities that is sent to all Council members so they may vote by mail on a final set of priorities that will be included in the Executive Summary and Summary of Panel reports.

The NEI staff continue the development of sections of Volume One, send them to the Chief, OPPAE, who forwards them to the Subcommittee for review and comment. The NEI staff base their drafts on material in the panel reports, discussions of the Council and Subcommittee at meetings, conversations with Panel members, and their own expertise regarding policy and the previous plan's implementation.

Copy editing of the panel reports is conducted by an experienced medical editor who edits each report for grammar, diction, syntax, and general style. Next, the Chief, OPPAE, reviews and further edits the report and passes it on to the

appropriate NEI extramural program director for additional editing. A clean draft is then typed and given to the program director for a second review. Then, after retyping as necessary, both the clean version of each chapter and the marked-up edited draft it was typed from, are mailed to the author(s) for final review with a two-week deadline for return.

The NEI staff complete Volume One sections (based on comments by the Chief, OPPAE and Subcommittee) and submit them to the Chief, OPPAE for review. The draft sections are then further reviewed by the Subcommittee and sent back to the OPPAE Chief who is responsible for consolidating the sections and overseeing their final production. Simultaneously, the NEI planning and program staffs work on Volume III, generating lists of NEI grants and projects as well as those supported by other agencies.

The OPPAE Chief also works with a graphic artist to develop a design and layout for the entire Plan. As each section of the plan is finalized, the text of the report is transmitted to the NIH central computer facility and put online for OPPAE to do final editing and coding for computerized typesetting by the Government Printing Office (GPO). Camera-ready copy is prepared for printing by the NIH Medical Clerk and Photography Branch and reviewed for the last time by OPPAE staff before being submitted for printing by the GPO. Advance copies are sent to interested individuals for review.

2. Uses of the National Plan

The NEI National Vision Research Plan serves as a scientific and administrative management tool for the National Advisory Eye Council and the NEI staff. In particular, it serves the Council in making program relevance judgments on grants at the funding margin.

Appendix 10 illustrates how these program relevance judgments are made.

Both the NIH scientific merit priority scores and the program priorities established in the National Plan help determine which grant applications the NEI will fund. All applications with high scientific merit priority scores are funded regardless of their relevance to program priorities. Some applications with mid-range scores and judged to be highly relevant to program priorities are singled out and placed in a better funding position than they would have been on the basis of the score alone.

The National Plan also provides an effective means of communicating with the scientific community, practicioners, Congress, other segments of the executive branch, and the public about the NEI's program goals, objectives, accomplishments, and priorities.

In addition, the National Plan is used as a source document for the NEI budget justification, Congressional testimony, public information activities, and other required planning documents such as the NEI component of the NIH Research Plan and Evaluation Plan.

3. Implementing the National Plan

The individual, investigator-initiated NIH research project grant continues to be the NEI's highest priority funding mechanism. For this reason, the successful implementation of the National Plan depends largely upon scientists submitting high quality grant applications for research inthe areas recommended for emphasis by the Council and the planning panels. Scientific merit, as assessed by evaluation of all applications in the traditional NIH peer review system, continues to be the principal factor considered in determining which approved grant proposals the NEI will fund. However, additional measures are taken by the Council and NEI staff to help fulfill the plan's recommendations. These measures include the following:

- Designating some approved grant applications as have High Program Relevance, thereby placing them in a more favorable position for funding than would otherwise be the case.
- Encouraging the development of proposals for clinical research, including clinical trials and other epidemiologic approaches.

- Encouraging research training and career development in the sciences related to vision, with particular emphasis on clinicians and other investigators who can help implement the priorities outlined in the plan.

- Sponsoring scientific workshops in selected priority areas in which interdisciplinary interaction is considered especially important to advancing the field, such as in ocular immunology.

- Supporting core grants to help maintain institutional environments that foster collaborative research and multidisciplinary approaches among investigators who already have NEI individual research grant support.

- Funding specialized clinical research centers to support a group of clinical studies which have a common focus on the etiology, pathogenesis, diagnosis, or treatment of human visual disorders.

- Providing for the maintenance and distribution of special research resources, such as laboratory animal breeding colonies and human donor tissue, as well as establishing special arrangements, such as consortium grants, to pool scarce resources in cooperative endeavors related to the priorities of this plan.

- Selectively using research contracts or cooperative agreements to continue support of NEI-initiated multicenter clinical trials and for the procurement of special research resources.

- Using the NEI intramural research program to take advantage of the unique resources and environment of the NIH campus in carrying out the priorities of this plan.

- Encouraging the transfer of scientific knowledge and the dissemination of information to practitioners and the general public to help in achieving the NEI's long-range goal to improve the visual health of the American people through research.

- Participating in international activities and agreements that provide a knowledge base for worldwide efforts to prevent blindness, broaden the scope of vision research generally, and bring about better utilization of research resources in participating countries.

Each of these measures is discussed in Volume One, Chapter Four of the National Plan.

Tracking the degree to which the priority recommendations outlined by the NAEC are being implemented in NEI's intra- and extramural programs is accomplished through the NEI's computer data base. The Extramural Program Directors examine

each intramural project and each grant to determine its specific relevance to one or more priority recommendations. If, in their judgments, the research being performed under that project or grant closely matches one of the Council's previous recommendations, the project or grant is assigned the letter "S" for "Specific" and a numerical code corresponding to that recommendation. If the project was either somewhat related or not related at all to the recommendation, it was designated "G" for "General". A letter/number code is assigned to each project or grant and each recommendation for computer processing. At each level of recommendation (program, subprogram, area, or subarea) an additional code - "other" is assigned if the project or grant is related to the overall area of research but not even generally related to a specific recommendation.

Following each NAEC meeting, those grant applications which are approved and funded are so designated. A report is generated prior to the next NAEC meeting which shows the correspondence between projected and actual funding in each Program Base or Program Development area. This information is used by the NAEC in making Program Relevance decisions and serves as an evaluation data base which is used in the development of the next National Plan.

B. PLANNING PROCESS FOR THE NEI COMPONENT OF THE NIH RESEARCH PLAN

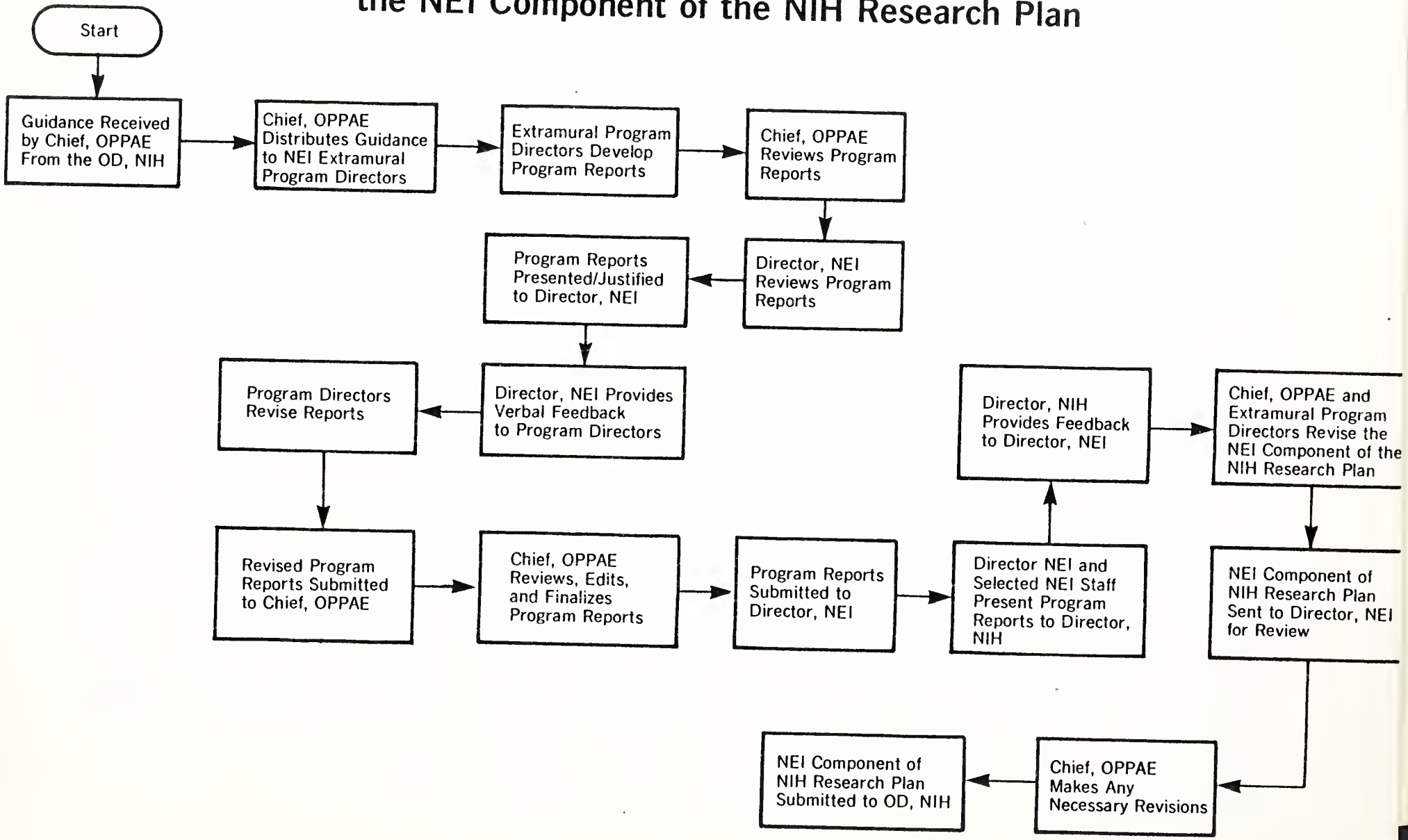
The NEI component of the NIH Research Plan is based on the data and recommendations in the National Vision Research Plan. The steps below and the flow chart (Exhibit 4) represent the process used to develop this.

- Step 1: Guidance Received From OD/NIH. The guidance received by the Chief, OPPAE from the OD/NIH is distributed to the Extramural Program Directors. The Chief, OPPAE attaches a memo requesting that the National Vision Research Plan be used as the basis for developing nominations of projects for inclusion in the NIH Research Plan.

- Step 2: Program Directors Prepare Program Reports. The Extramural Program Director then develop a brief paragraph describing and justifying each project they wish to include in the NIH Research Plan. These nomination paragraphs are used as a "topic list" from which the program director speaks during the meeting with the Director, NEI.

- Step 3: Review of Program Reports. The lists of project nominations are then submitted to the Chief, OPPAE and the Director, NEI for their review.

Exhibit NEI-4
Planning Processes for the Development of the NEI Component of the NIH Research Plan


Start
Guidance Received by Chief, OPPAE From the OD, NIH
Chief, OPPAE Distributes Guidance to NEI Extramural Program Directors
Extramural Program Directors Develop Program Reports
Chief, OPPAE Reviews Program Reports
Director, NEI Reviews Program Reports
Program Reports Presented/Justified to Director, NEI
Director, NEI Provides Verbal Feedback to Program Directors
Program Directors Revise Reports
Revised Program Reports Submitted to Chief, OPPAE
Chief, OPPAE Reviews, Edits, and Finalizes Program Reports
Program Reports Submitted to Director, NEI
Director NEI and Selected NEI Staff Present Program Reports to Director, NIH
Director, NIH Provides Feedback to Director, NEI
Chief, OPPAE and Extramural Program Directors Revise the NEI Component of the NIH Research Plan
NEI Component of NIH Research Plan Sent to Director, NEI for Review
Chief, OPPAE Makes Any Necessary Revisions
NEI Component of NIH Research Plan Submitted to OD, NIH

- Step 4: Presentation of Program Reports to Director, NEI. All of the program directors meet with the Director, NEI and the Chief, OPPAE to discuss and justify their project nominations. The Director, NEI provides verbal feedback to the program directors.

- Step 5: Program Directors Revise Reports. The project nominations are then revised according to the review by the NEI Director and are re-structured to conform to the requirements of the NIH Research Plan. This includes the development of narrative and current budget figures which are subsequently used for the appropriation justification process.

- Step 6: Review and Submission of Revised Program Reports. The Chief, OPPAE then reviews, edits, and finalizes the revised program reports for submission to the Director, NEI.

- Step 7: Annual Briefing with OD/NIH. The Director, NEI and selected NEI staff meet with the Director, NIH to present their program reports.

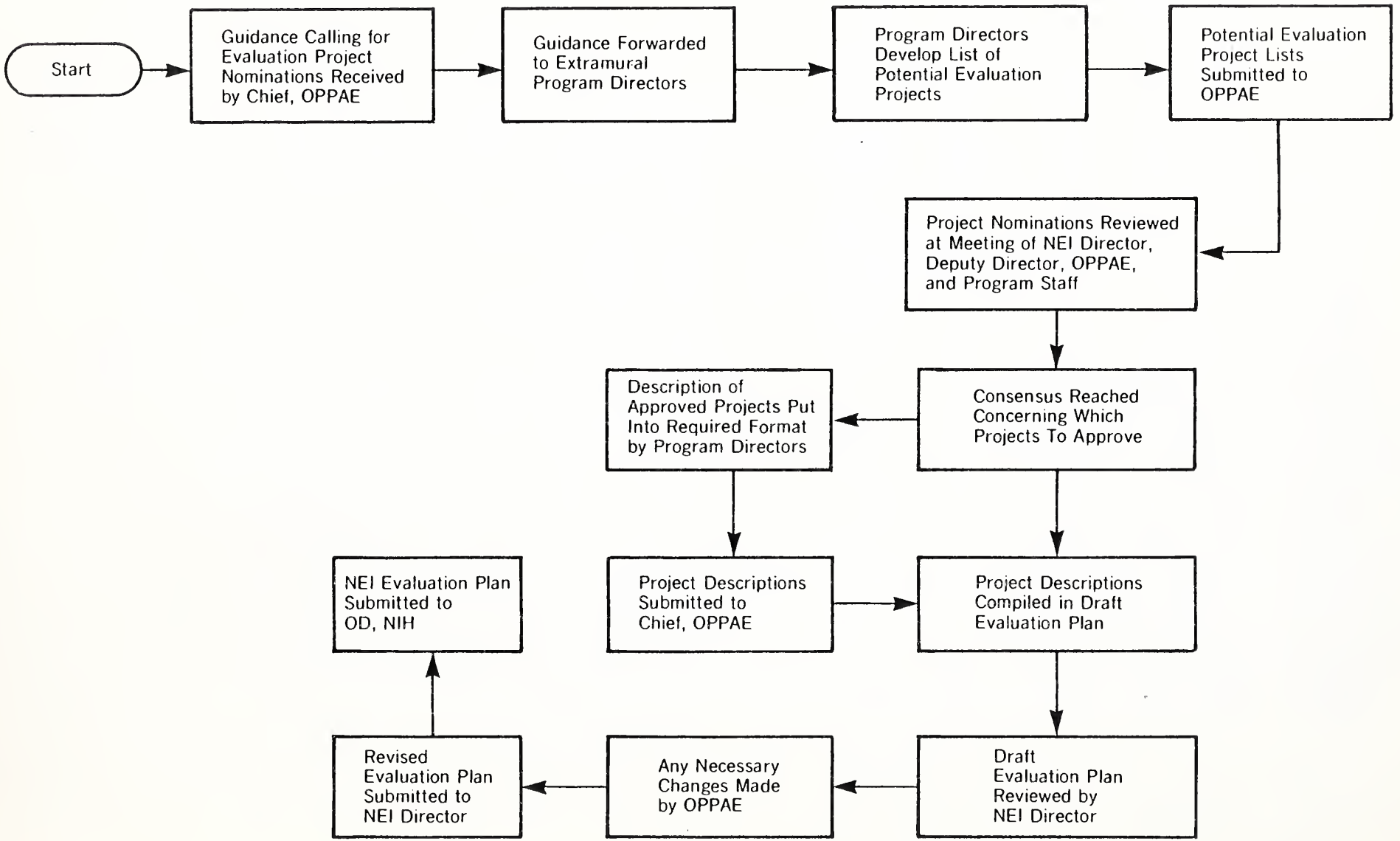
- Step 8: Development of NEI Component of NIH Research Plan. Based on feed-back from the Director, NIH, the OPPAE staff and program directors finalize their submission for the NIH Research Plan.

C. ANNUAL EVALUATION PLAN

The development of the National Vision Research Plan has recently taken priority at the NEI; thus formal program evaluations have not been conducted. However, 1% set-aside evaluation funds have been used by the NEI to fund a portion of the development of the National Vision Research Plan. The process of developing and implementing the National Plan, however, has laid the foundation and developed elements (such as written program objectives, a usable data base, and research priorities) which are identified by the NEI as fundamental to formal program evaluation.

The NEI has proposed to conduct their first formal program evaluation of their small grants program. The following steps and the flow chart which appears as Exhibit 5 depict the process used for developing the Annual NEI Evaluation Plan.

Exhibit NEI-5
Planning Processes Used To Develop the Annual NEI Evaluation Plan


Start
Guidance Calling for Evaluation Project Nominations Received by Chief, OPPAE
Guidance Forwarded to Extramural Program Directors
Program Directors Develop List of Potential Evaluation Projects
Potential Evaluation Project Lists Submitted to OPPAE
Project Nominations Reviewed at Meeting of NEI Director, Deputy Director, OPPAE, and Program Staff
Consensus Reached Concerning Which Projects To Approve
Description of Approved Projects Put Into Required Format by Program Directors
Project Descriptions Compiled in Draft Evaluation Plan
Project Descriptions Submitted to Chief, OPPAE
Draft Evaluation Plan Reviewed by NEI Director
Any Necessary Changes Made by OPPAE
Revised Evaluation Plan Submitted to NEI Director
NEI Evaluation Plan Submitted to OD, NIH

- Step 1: Guidance Received. The guidance calling for a nomination of potential evaluation projects is forwarded to the extramural program directors.

- Step 2: Program Directors Submit Nominations. The program directors then develop a list of projects which they feel might be suitable for program evaluation. These lists are then submitted to the OPPAE.

- Step 3: Review of Project Nominations. The proposed projects are reviewed during a meeting of the Director, and Deputy Director, NEI, and the OPPAE staff. The decision of which projects to include is arrived at by consensus with the ultimate approval of the Director.

- Step 4: Evaluation Project Form Completed/Submitted. The program directors then complete the appropriate forms for those projects approved by the Director, NEI and returns the forms to the OPPAE staff who submit them to the OD/NIH.

5. OUTCOMES OF AND BARRIERS TO PLANNING

A. OUTCOMES OF PLANNING

Because the NEI plan is developed with the advice of hundreds of vision scientists and reflects a consensus of expert assessments of major research needs and opportunities, the NEI and the NAEC have assumed that the research community will respond voluntarily to the recommendations of the National Plan. Significant programmatic impact is therefore expected as a result of individual scientists developing, on their own initiative, grant proposals for research areas which have been identified as high priority without need for extensive implementation by the NEI. However, the implementation of the National Plan is not left to chance; a variety of approaches are taken to help assure that recommendations are achieved.

The process of developing the National Plan has led to at least one identifiable change in program content/development. The clinicians involved in developing the current Plan for (what had been) the Sensory and Motor Impairment Program felt that the quality of clinical support in this area had been less than adequate. They felt that this was due, in part, to the limited 'scope of' that program implied by the name. Consequently the name of the program was changed to "Strabismus, Amplyopia, and Visual Processing" and the focus was broadened to improve the overall quality of research in both basic and clinical studies.

In addition to affecting program development/content -- and thereby indirectly affecting resource allocation -- the National Plan makes certain specific recommendations which directly affect resource allocation, such as one recommendation to initiate a multicenter clinical trial.

B. BARRIERS TO PLANNING

As with any complex process which requires cooperation among diverse components of several organizations and both directly and indirectly affects other processes, some barriers to planning do exist.

The "bad reputation" that planning has traditionally had at the trans-NIH level was one barrier identified by the NEI staff. It is felt that a pervasive belief exists at the NIH that planning and basic research are not compatible endeavors. This often makes cooperation in planning difficult to obtain.

A lack of analytic tools also makes planning more difficult. If more sophisticated data base capabilities (such as the ability to track program outcomes) more objective evaluation tools, and more numerous and sophisticated planning tools were available, planning would be greatly facilitated.

It is also felt that a misperception by the OD/NIH of what the BID's are trying to accomplish through planning creates a barrier. Rather than being a conduit for tracking grants and allocating contract dollars, planning is seen by the NEI staff as a viable mechanism to plan entire programs, to determine trends, and to identify solvable problems within research areas. This, it is felt, is not understood at the OD/NIH level.

Finally, the non-planning duties required of the OPPAE staff are also seen as a barrier to planning in that they take both time and resources away from planning.

6. SUMMARY, OBSERVATIONS, AND THE FUTURE

Vision Research - A National Plan: 1983-1987 represents the third in a series of five-year National Plans prepared by the NEI National Advisory Eye Council. In the words of the NEI Director (as stated in this Forward to Volume One) --

> "The value of these National Plans to the NEI staff has been inestimable. They have made it easier to develop and maintain a consistant policy that guides the day-to-day management of the [NEI's] affairs and to develop and implement a long-range strategy for program growth and developmment. They have provided the [NAEC] with a rational basis for determining the program relevance of the grant applications they review. And, they have provided this support while allowing great flexibility to capitalize on unforseen opportunities as they have occured."

The National Plans serve as a foundation for all planning at the NEI. Because of the nature of their development, the program and evaluation planning processes are interdependent. The National Vision Research Plan is the source document for the development of the NEI component of the NIH Research Plan while the Annual Evaluation Plan is used as one mechanism for funding appropriate portions of the National Plan. The evolutionary stage of planning at the NEI (i.e., this being the third National Plan developed), the structuring of a routine process for its development, and the inclusion of both intramural and extramural scientists as well as hundreds of constituent group representatives, scientific experts, and other interested individuals have greatly facilitated program planning at the NEI and have helped to meet some of what are perceived as barriers to planning.

The role played by the National Plan is also responsible for the integrated relationships between planning and other activities, such as budgeting and program analysis. The integrated relationship between planning and budgeting is supported and facilitated by the involvement of the Budget Officer in providing the NAEC with data necessary for planning budget. The NAEC continues to work with the Budget Officer as the planning budget is finalized to ensure consistency. The National Plan development process is the mechanism that "drives" the developmment of an overall NEI budget. This budget is subsequently used to develop the budget required for the NEI component of the NIH Research Plan.

Similarly, the program analysis activity is closely linked to both planning and budgeting at the NEI. Originally, the Planning Analysis Office was organizationally situated in the Extramural Program. As planning evolved, however, the results of program analysis came to be used as a mechanism for the tracking and support of planning. Based on this, program analysis became a function of the OPPAE. It is the program analysis function that provides the foundation for the programmatic data base. It is also used as a budgetary tool, e.g. to inform program staff that they are exceeding their budget.

The evolution of the National Vision Research plan has followed a pattern of assessment and revision of the planning processes as well as the planning content. Thus, the development of each National Vision Research Plan has become more "smooth" -- more systematic -- so that today the process of plan development is not person-dependent. In other words, the involvement of specific individuals or groups is not required for the effective continuation of the planning process; it is, essentially, a consistent, cyclical process.

Of unlimited usefulness has been the development of the programmatic data base which has enabled the NEI to implement a cost-tracking for major programs (including the intramural program), improve categorization of current research support, and provide a framework for assessing future needs and opportunities in vision research. Within this data base, the third National Vision Research Plan has, for the first time, grouped the Council's recommendations according to two categories which together encompass all the research supported by the NEI, i.e., Program Base and/or Program Development Priority research areas. Continued development and refinement of this data base will be a priority activity for the future.

The NEI plans to increase their evaluation activities in the future. Evaluation has been somewhat neglected as most of the NEI's efforts have been directed toward refining the National Plan development process. The NEI realizes, however, that a careful, well reasoned, and detailed evaluation of NEI programs will add additional credibility to the National Plan and facilitate priority setting and budget development. Therefore, the NEI has initiated an evaluation of their Small Grants Program.

Over the next five years, the NEI will use these mechanisms to monitor how closely actual program development matches the recommendations of the National Plan. From this tracking, the NEI hopes to identify areas in which additional measures may be required to stimulate needed research and possibly to find areas in which the recommendations of the National Plan should be modified.

7. SOURCES OF INFORMATION

Data were gathered from written sources, including published documents as well as internal reports and memoranda and from personal interviews with key NIH staff.

Personal Interviews:

Mr. Julian Morris -- Chief, OPPAE
Mr. Terry Gillen -- Program Analyst, OPPAE

Documents Consulted:

1. National Advisory Eye Council, Vision Research Program Planning Committee, Vision Research Program Planning, Vol. I-II, 1975, DHEW Publication No. (NIH) 75-664 (Vol. I) and 75-665 (Vol. II), Bethesda, Maryland.

2. National Advisory Eye Council, Vision Research: A National Plan: 1978-1982, Vols. I-III, 1977, DHEW Publication Nos. (NIH) 78-1258 (Vol. I), 78-1259 (Vol. II), and 78-1260 (Vol. III), Bethesda, Maryland.

3. National Eye Institute, Annual Report Fiscal Year 1981, (no publication number) National Institutes of Health, Bethesda, Maryland.

4. National Eye Institute, "Description of NEI Program Planning Process," September 23, 1982.

5. National Institutes of Health, Division of Public Information, Facts About NIH (no publication number), Bethesda, Maryland.

6. National Institutes of Health, Office of Program Planning and Evaluation and Division of Research Grants, NIH Data Book: 1982, U.S. Government Printing Office, Washington, DC.

7. Riches, Helen M. "Anatomy and Assessment of Program Planning at the National Eye Institute," January 1981, NIH Contract No. NEI 80-301, Bethesda, MD.

APPENDIX 1

CRITERIA FOR REVIEWING PREVIOUS PANEL REPORTS

Suggested Questions for Preliminary Review of Previous Panel Report

1. Is the scope and nature of the program clearly described?

2. Does the writing reflect the uniqueness and special nature of the group of diseases with which the report is concerned?

3. Is the importance of the overall problem sufficiently documented?

4. Are all the major disorders encompassed by the various subprograms mentioned and their importance and significance highlighted?

5. What accomplishments have been made since this report was published which are worthy of highlighting in the new report? What major new lines of research currently underway might be mentioned?

6. Is the disease problem posed by the subprogram or the area of basic research well described? For basic research, is its relevance to clinical problems convincingly stated?

7. Under Research Needs and Approaches, what areas discussed should the new panels continue to focus upon? What aspects specifically should be addressed? Which of these needs or approaches are no longer relevant? What significant needs and/or approaches may have been overlooked or omitted which should now be addressed? Which approaches have fairly well been exhausted and needs heve been met?

8. Which of the Priorities and Recommendations listed have been accomplished? Which require further research? Which are too general, as stated, or too specific? What new priorities and recommendations should be considered?

9. Under Resource Requirements, is the relative incremental level of effort envisioned for the subprogram still appropriate, or should there be either a major expansion or leveling off of support for this field?

APPENDIX 2

NAEC PROGRAM PLANNING SUBCOMMITTEE/PANEL MEETING
TENTATIVE AGENDA

Tentative Agenda

Corneal Diseases Panel

National Advisory Eye Council
Program Planning Subcommittee

May 3, 1980

12 Noon

Satellite A, Hilton Inn Gateway

Kissimmee, Florida

1.	Welcome	Dr. Nesburn
2.	Orientation	Mr. Morris
	• History of and Rationale for NEI Program Planning • NEI Director's Charge to Panel • Meaning of Program Priorities • Timetable for Development and Publication of Panel's Report • Outline of Panel's Report • Planning Methodology • Review of Program Data	
3.	Corneal Program Overview	Dr. Helmsen
4.	Strengths and Weaknesses of Existing Corneal Diseases Plan	Dr. Nesburn/Panel
	• Discussion of Corneal Diseases Subprogram Structure • Some Important Research Areas to be Addressed by Panel	
5.	Discussion of Corneal Program Objectives	Dr. Nesburn/Panel
6.	Tasks to be Accomplished at Next Meetings	Dr. Nesburn/Mr. Morris
7.	Schedule of Future Meetings	Dr. Nesburn

Tentative Agenda

Glaucoma Panel

National Advisory Eye Council
Program Planning Subcommittee

May 5, 1980

7:30 p.m.

Boca-Cocoa Room, Orlando Hyatt House

Kissimmee, Florida

1.	Welcome	Dr. Anderson
2.	Orientation	Mr. Morris

- History of and Rationale for NEI Program Planning
- NEI Director's Charge to Panel
- Meaning of Program Priorities
- Timetable for Development and Publication of Panel's Report
- Review of Program Data

3.	Strengths and Weaknesses of Existing Glaucoma Plan	Dr. Anderson/Panel

- Discussion of Glaucoma Subprogram Structure
- Some Important Research Areas to be Addressed by Panel

4.	Discussion of Glaucoma Program Objectives	Dr. Anderson/Panel
6.	Tasks to be Accomplished at Next Meetings	Dr. Anderson/Mr. Morris
7.	Schedule of Future Meetings	Dr. Anderson

Tentative Agenda

National Advisory Eye Council
Program Planning Subcommittee

May 28, 1980
4:00 p.m.
Building 31, Conference Room 8

Update on Program Planning Activities — Mr. Morris

- Names of Panel Members
- Meetings Held
- Meetings Scheduled
- Timetable
- Journal Announcements

Observations on Planning Meetings to Date — Dr. Duane

"Tracking" Data Provided to Panels — Mr. Morris

Subcommittee's Own Report (Volume One) — Dr. Duane

- Structure
- Content
- Cross-Cutting Issues

Tentative Agenda

Retinal and Choroidal Diseases Panel

National Advisory Eye Council
Program Planning Subcommittee

June 10, 1980
9:00 a.m. - 4:00 p.m.
Building 31, Room 6A05
National Institutes of Health

1.	Welcome	Dr. Ripps, Dr. Tasman
2.	Orientation	Mr. Morris
	• History of and Rationale for NEI Program Planning • NEI Director's Charge to Panel • Meaning of Program Priorities • Timetable for Development and Publication of Panel's Report • Outline of Panel's Report • Planning Methodology • Review of Program Data	
3.	Retinal and Choroidal Diseases Program Overview	Dr. Goldberg, Dr. Graham
4.	Strengths and Weaknesses of Existing Retinal and Choroidal Diseases Plan	Dr. Ripps, Dr. Tasman, Panel
	• Discussion of Retinal and Choroidal Diseases Subprogram Structure • Some Important Research Areas to be Addressed by Panel	
5.	Discussion of Retinal and Choroidal Diseases Program Objectives	Dr. Ripps, Dr. Tasman, Panel
6.	Preliminary Outline of New Report	Dr. Ripps, Dr. Tasman
7.	Specific Writing Assignments	Dr. Ripps, Dr. Tasman
8.	Identification of Possible Consultants	Dr. Ripps, Dr. Tasman
9.	Tasks to be Accomplished at Next Meetings	Dr. Ripps, Dr. Tasman, Mr. Morris
10.	Schedule of Future Meetings	Dr. Ripps, Dr. Tasman

Tentative Agenda

Sensory and Motor Disorders of Vision Panel

National Advisory Eye Council
Program Planning Subcommittee

June 23, 1980
9:00 a.m. - 4:00 p.m.
Building 31, Room 6A35
National Institutes of Health

1.	Welcome	Dr. Reinecke, Dr. Wiesel
2.	Orientation	Mr. Morris
	• History of and Rationale for NEI Program Planning • NEI Director's Charge to Panel • Meaning of Program Priorities • Timetable for Development and Publication of Panel's Report • Outline of Panel's Report • Planning Methodology • Review of Program Data	
3.	Sensory and Motor Disorders of Vision Program Structure and Objectives	Dr. Atwell, Dr. Bailey, Panel
4.	Strengths and Weaknesses of Existing Sensory and Motor Disorders of Vision Plan	Dr. Reinecke, Dr. Wiesel, Panel
5.	Some Important Research Areas to be Addressed by Panel	Dr. Reinecke, Dr. Wiesel, Panel
6.	Specific Topic Assignments	Dr. Reinecke, Dr. Wiesel
7.	Identification of Possible Consultants	Dr. Reinecke, Dr. Wiesel
8.	Tasks to be Accomplished at Next Meetings	Dr. Reinecke, Dr. Wiesel, Mr. Morris
9.	Schedule of Future Meetings	Dr. Reinecke, Dr. Wiesel

Tentative Agenda

Sensory and Motor Disorders of Vision Panel

National Advisory Eye Council
Program Planning Subcommittee

July 16, 1980
9:00 a.m. - 4:00 p.m.
Building 31, Room 6A35
National Institutes of Health

1.	Welcome	Dr. Reinecke, Dr. Wiesel
2.	Orientation	Mr. Morris
	• History of and Rationale for NEI Program Planning • NEI Director's Charge to Panel • Meaning of Program Priorities • Timetable for Development and Publication of Panel's Report • Outline of Panel's Report • Planning Methodology • Review of Program Data	
3.	Sensory and Motor Disorders of Vision Program Structure and Objectives	Dr. Atwell, Dr. Bailey, Panel
4.	Strengths and Weaknesses of Existing Sensory and Motor Disorders of Vision Plan	Dr. Reinecke, Dr. Wiesel, Panel
5.	Some Important Research Areas to be Addressed by Panel	Dr. Reinecke, Dr. Wiesel, Panel
6.	Specific Topic Assignments	Dr. Reinecke, Dr. Wiesel
7.	Identification of Possible Consultants	Dr. Reinecke, Dr. Wiesel
8.	Tasks to be Accomplished at Next Meetings	Dr. Reinecke, Dr. Wiesel, Mr. Morris
9.	Schedule of Future Meetings	Dr. Reinecke, Dr. Wiesel

Agenda

National Advisory Eye Council
Program Planning Subcommittee

September 21, 1980
7:00 p.m.

Kenwood Suite
Bethesda Marriott Hotel
2 Pooks Hill Road
Bethesda, Maryland

7:00 p.m.	Welcome	Dr. Duane
7:05 p.m.	Status of Report Outlines	Mr. Morris
7:15 p.m.	Report Outline - Cataract	Dr. Stark
7:45 p.m.	Report Outline - Corneal Diseases	Dr. Nesburn
8:15 p.m.	Report Outline - Retinal and Choroidal Diseases	Dr. Ripps
8:45 p.m.	Report Outline - Glaucoma	Dr. Palmberg
9:15 p.m.	Progress Report - Sensory and Motor Disorders of Vision	Dr. Wiesel
9:45 p.m.	Critique and Closing Remarks	Dr. Duane/Mr. Morris
10:00 p.m.	Adjournment	

APPENDIX 3

CHARGE TO PROGRAM PLANNING PANELS

April 29, 1980 Attachment 4

Charge to Program Planning Panels

National Advisory Eye Council Program Planning Subcommittee

1. Review in detail the report of the previous panel noting its overall strengths and weaknesses. (In carrying out the following tasks, compare what the report of the previous panel had to say on each topic, noting sections of that report which might be appropriate for inclusion as is, or in a revised form, in the new report.)

2. Redefine and rank objectives for NEI's research program in the panel's area of responsibility according to specific criteria (see program goals and objectives from previous report).

3. Review available data on the social and economic impact of the group of diseases with which the panel is concerned (see "Importance" section and introductory portion of each subprogram chapter of previous report).

4. Make a systematic review of current support by NEI and other public and private agencies of research in the panel's area of concern, specifically:

   - o Examine how well NEI's current portfolio of grants corresponds in type and number to the recommendations made by previous panel;
   - o Note research areas in which:
     - -- There are important gaps in NEI support;
     - -- There is some activity ongoing but increased emphasis may be warranted;
     - -- There is already adequate support or perhaps even more support than the field may warrant;
   - o Comment on the overall program structure, classification, content, and balance noting treatment of these topics in previous panel's report.

5. Assess and document the general status of research in the panel's area of responsibility, specifically noting:

   - o Recent accomplishments and progress toward achieving current program objectives (see "Accomplishments" section of previous report);
   - o Relevance of contributions of research in the panel's area of responsibility to research in other eye diseases, research in other diseases, and biomedical research generally.

6. Identify obstacles to future progress:

   - o Conceptual;
   - o Administrative;
   - o Scientific;
   - o Knowledge assessment and transfer.

7. Suggest--and rank according to priority--major research and other approaches to solving these problems and achieving program objectives.

8. Estimate resources that will be needed to carry out these recommendations during the years 1983 to 1987;

   - o Type of project (grants, contracts, centers, etc.);
   - o Number of projects;
   - o Funds.

9. Identify cross-program issues and make other recommendations to the NAEC Program Planning Subcommittee to be considered for inclusion in its overview report (Volume One) such as:

   - o Training and manpower development;
   - o Potential contributions of other fields of vision research and biomedicine to the panel's field of research;
   - o Specialized research resources;
   - o Animal models;
   - o Health education.

10. Prepare a final report for submission to the National Advisory Eye Council's Program Planning Subcommittee.

APPENDIX 4

MODEL OUTLINE OF SUBPROGRAM REPORTS

September 25, 1980

Model Outline of Subprogram Reports

A. Introduction

(The following items should all be included in this section when appropriate; however, they need not be split out as subheadings.)

- o Brief description of the disorder or research area.
- o Importance of the disease as a public health problem and/or importance of the research field and its relevance to disease problem(s).
- o Data on incidence, prevalence, and costs (if appropriate and if available).
- o General state of knowledge in the field (what we know and do not know; what we can do and cannot do).
- o Relationship to other ocular or systemic disorders or areas of research (within the program, vision research in general, or biomedical research in general).

B. Subprogram Objectives

- o These should be few in number. They should begin with the word "to" followed by an action verb. They should state the expected long-term results of the subprogram in broad terms. Objectives are not projects or recommendations. They help define the scope of what the program is intended to accomplish.

C. Overview of Current Research Support

- o Brief narrative summary of ongoing research supported by NEI and other organizations based on data in the printouts and abstracts NEI has provided as well as personal knowledge of the field. Identify which organization is supporting what kinds of research.
- o Strengths of and gaps in this support in terms of how it is or is not helping to meet the above objectives.

D. Recent Accomplishments

- o These need not be just major "breakthroughs" but should be specific examples of solid research advances. This might even include negative findings which have indicated that it might be more fruitful to pursue other lines of research. Where appropriate, indicate how these accomplishments fulfill subprogram objectives. This section can be as detailed and as long as the subject warrants.

E. Research Needs, Opportunities, and Possible Approaches

This is the heart and in most cases will be the longest part of the report. It should be as detailed and as lengthy as necessary to discuss adequately the most important current needs and opportunities in the field and some alternative approaches for the future--in other words, our options. These options should be discussed in terms of how they could fulfill one or more of the subprogram objectives. The discussion should include scientific disciplines which bear on the problem, the need for and application of research techniques, training needs, and needs for animal models and other special resources.

F. Priorities

These should be listed numerically, succinctly, as imperatives (e.g., Conduct clinical trials . . .), and should summarize the topics discussed in Section E. It is not necessary or even perhaps desirable to cover each topic discussed in Section E; these should be a selection of the most important of the approaches. All items listed here, however, should have been previously discussed and capable of being rationalized from all preceding sections. These priorities will form the basis of resource tables similar to those included in the 1977 report and for future "tracking" tables.

G. Resource Requirements

- o Research support mechanisms (e.g., grants, contracts)
- o Number of projects
- o Dollar requirements
- o New or special administrative mechanisms needed to carry out recommendation

H. References

- o References should follow AMA style as used in the Archives of Ophthalmology and other AMA journals.

APPENDIX 5

VISION RESEARCH NATIONAL PLAN VOLUME I OUTLINE

May 28, 1980

Volume I (Draft)

1. Preface: Dr. Kupfer

2. Introduction: Dr. Duane (Meaning of Priorities, "High/Low" Program Relevance)

3. Summary Recommendations/Priorities

4. Council's Five-Year Budget: 1983-1987

5. Program Descriptions/Panel Report Summaries/Program Data/Tracking

6. Planning Strategy/Methodology/Implementation

7. Cross-Cutting Areas

    - Diseases/Conditions
        - Myopia
        - Contact Lenses
        - Diabetes
        - Others?
    - Disciplines
        - Epidemiology
        - Genetics
        - Lifespan (Childhood and Aging)
        - Environmental/Toxicology
        - Immunology
        - Nutrition
        - Neurobiology
        - Aging
        - Others?

- NEI Program Issues
  - Training
  - Resources
    - Manpower
    - Equipment
    - Facilities (Centers, Construction)
    - Tissues/Animal Models
    - Registries
  - Intramural Research
- Management Issues
  - Clinical Research
  - Prevention
  - Research Project Grants
  - International Programs
  - Knowledge Transfer
  - Consensus Development
  - Workshops

8. List of Consultants

9. Acknowledgements

APPENDIX 6

JOURNAL ANNOUNCEMENT

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

See Below

August 5, 1980

Chief, Office of Program Planning and Scientific Reporting, NEI

Journal Announcement from NAEC Program Planning Subcommittee

Attached is a draft of an announcement intended for publication in professional journals and in other publications whose readers may be interested in vision research. Its purpose is to solicit comments and suggestions from a broader group than our Council, Panels, and consultants. Please let me have your comments by COB August 11.

Julian M. Morris

Attachment:
Draft Journal Announcement

Addressees:
Mr. McManus
Dr. Geller
Mr. Gillen
Dr. Atwell
Dr. Steinberg
Dr. Bailey
Dr. Suran
Dr. Helmsen
Dr. Graham
Dr. Goldberg

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OFFICE	SURNAME	DATE	OFFICE	SURNAME	DATE	OFFICE	SURNAME	DATE

☆U.S. GOVERNMENT PRINTING OFFICE: 1979 — 304-952

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

August 5, 1980 Draft Journal Announcement

The National Advisory Eye Council, principal consultative body to the National Eye Institute, is currently updating its five-year national vision research plan. Aided by more than 55 consultants representing virtually every major field of vision research, the Council's Program Planning Subcommittee is working to identify and document major research needs, opportunities, and priorities for the years 1983-1987 in each of the following NEI programs: Retinal and Choroidal Diseases, Corneal Diseases, Cataract, Glaucoma, and Sensory and Motor Disorders of Vision. Each of these programs, though disease-oriented, encompasses basic and applied research on both normal and abnormal development, structure, and function of affected tissues of the eye and visual system.

Because the Council wants its new planning report, scheduled for completion by Spring 1981, to reflect the broadest possible input from scientists, as well as practioners and the general public who daily are confronted with practical problems in the prevention, diagnosis, treatment, and management of eye disorders, all interested individuals or organizations are invited to submit ideas, suggestions, or information that may be helpful in preparing the new plan. In particular, the Council would like to learn what diseases are considered in the greatest need of research, what current areas of basic and applied vision research offer the best hope for significant advance (not necessarily clinical breakthrough) over the next seven years, and what new research techniques should be more widely applied and/or further developed. Also, the Council would like to know what new controlled clinical trials of new therapeutic or diagnostic techniques the NEI should support, what research problems might best lend themselves to a multidisciplinary research concern

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approach, what specific needs there are for research training, what information from other fields of biomedical might be applicable to studies of the visual system, and what new programs and policies the NEI should consider to help it carry out its mission to improve the nation's visual health.

Comments and suggestions for the Council may be mailed to Mr. Julian M. Morris, Chief, Office of Program Planning and Scientific Reporting, National Eye Institute, 9000 Rockville Pike, Building 31, Room 6A25, Bethesda, Maryland 20205. A limited number of copies of the Council's 1977 planning report are also available from this office.

Thomas D. Duane, M.D.
Chairman
National Advisory Eye Council,
Program Planning Subcommittee

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☆U.S. GOVERNMENT PRINTING OFFICE: 1979 — 304-852

APPENDIX 7

NEI PLAN EXHIBIT

MEMORANDUM

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
NATIONAL INSTITUTES OF HEALTH

TO : Carl Kupfer, M.D.
Director, NEI

DATE: April 10, 1981

FROM : Chief, Office of Program
Planning and Evaluation, NEI

SUBJECT: NEI Exhibit on the New NAEC Plan at ARVO

I am attaching final copy for NEI's exhibit that will be displayed at the annual meeting of the Association for Research in Vision and Ophthalmology in Sarasota, Florida, April 26-May 1. The purposes of this display, now being designed and produced under the direction of the NIH Medical Arts and Photography Branch, are to:

1. Alert the vision research community to the imminent publication of the 1983-1987 National Plan.

2. Describe the NAEC/NEI program planning process including identification of planning participants, program structure, and uses of the plan.

3. Differentiate between NEI program priorities set forth in the plan and IRG scientific priority scores, while showing how the two intersect to affect the awarding of grants.

Several members of the NEI staff reviewed and commented upon earlier drafts of the exhibit copy. In addition to Ed McManus, Dr. Geller and yourself, Mr. Gillen; Drs. Goldberg, Atwell, and Suran; and Ms. Corbett made particularly helpful suggestions, most of which I have incorporated into the final version.

Julian M. Morris

cc:

Mr. McManus	Dr. Atwell
Dr. Geller	Dr. Dudley
Dr. Kinoshita	Dr. Helmsen
Dr. Ballintine	Dr. Henley
Dr. Wurtz	Ms. Corbett
Dr. Goldberg	Ms. McKee
Dr. Graham	Ms. Richardson
Dr. McLaughlin	Ms. Perrell
Dr. Suran	Mr. Gillen

Panel One

VISION RESEARCH--A NATIONAL PLAN: 1983-1987

A NEW MULTIYEAR PLAN FOR SUPPORT OF VISION RESEARCH BY THE NATIONAL EYE INSTITUTE (NEI)

Purposes and Aims:

- o Justify appropriate level of Federal support for vision research
- o Identify major current needs and opportunities in vision research and establish program and funding priorities
- o Promote stability and continuity in vision research funding and achieve appropriate program balance
- o Speed progress toward achieving NEI program goals
- o Demonstrate accountability for expenditure of tax dollars

Prepared by: The National Advisory Eye Council (NAEC), NEI's senior advisory body, assisted by approximately 260 other scientific advisors and consultants and members of the NEI staff

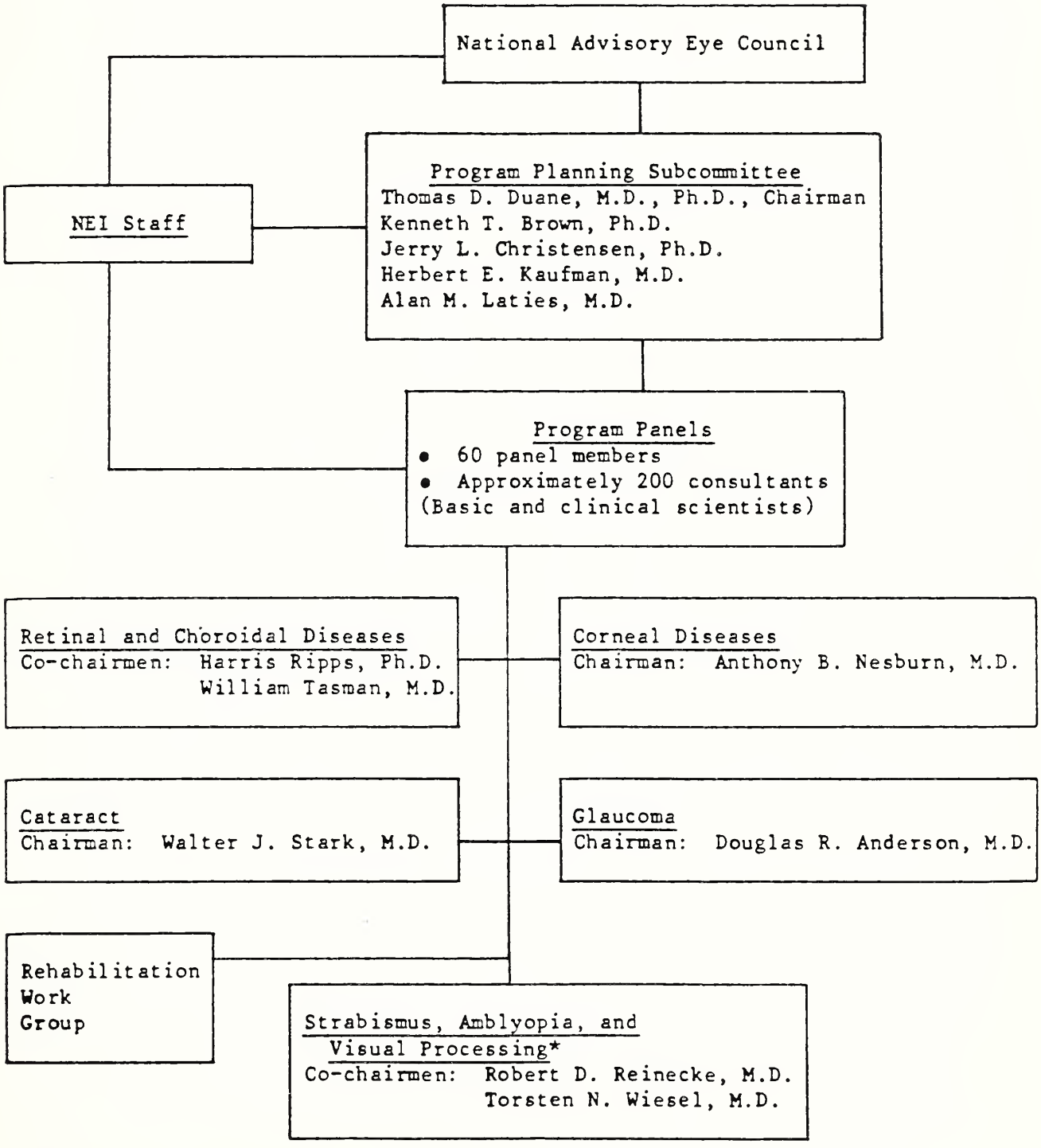
Availability: Publication scheduled for Winter 1981

Distribution:

- o Members of ARVO and other scientific and professional organizations
- o Other scientists and health practitioners interested in vision research and medical school and academic deans
- o Appropriate Federal officials: NIH, PHS, DHHS, OMB
- o Members of Congress interested in biomedical research
- o Interested members of the general public

Panel Two

PLANNING STRUCTURE



* Formerly Sensory and Motor Disorders of Vision

Panel Two-A

USES OF VISION RESEARCH PLAN

1. Communication with:
   - o Scientific community
   - o Practitioners
   - o Congress
   - o Other segments of Executive Branch
   - o Public
2. Scientific and Administrative Management
   - o National Advisory Eye Council
   - o NEI Staff
3. Source Document for:
   - o NEI budget justification
   - o Congressional testimony
   - o Other required program documents
   - o Public information activities
4. Accountability
   - o Program described
   - o Extent and cost of disease documented
   - o Program goals and objectives defined
   - o Current support assessed
   - o Recent accomplishments summarized
   - o Research needs and opportunities defined
   - o Priorities set
   - o Resource needs justified

Panel Three

NAEC PROGRAM PLANNING SUBCOMMITTEE IS:

- Involving representatives of the vision research community in helping establish NEI program goals, objectives, and priorities
- Evaluating implementation of recommendations of previous NAEC plan
- Analyzing data on current support of vision research by NEI and other organizations
- Reviewing NEI program goals and objectives
- Documenting recent research accomplishments
- Assessing current research needs and opportunities
- Recommending:
  - Updated research priorities indicating appropriate levels of future activity and support
  - Additional measures for implementation
  - Budgets for research, research training, and manpower development
  - Other research resource requirements

Panels Four and Five

REVISED NEI PROGRAM STRUCTURE

The planning panels are preparing detailed reports for submission to the Council. These reports, which will identify major needs and opportunities in vision research, are being organized according to the following revised NEI program/subprogram structure. Consideration of these needs and opportunities, and the number of NEI project grants (R01s) awarded in FY 1980 in each subprogram, provide the panels with a basis for formulating their recommendations concerning future NEI program development.

Retinal and Choroidal Diseases Program

Subprograms	Number of Grants
Vascular, Inflammatory, and Neoplastic Disorders of the Retina and Choroid	
Diabetic Retinopathy, Sickle Cell Retinopathy, and Other Vascular Abnormalities	53
Inflammatory Disorders	16
Tumors	14
Degenerative Disorders of the Retina	
Developmental and Hereditary Disorders	34
Macular Degeneration	19
Retinal Detachment and Vitreous Disorders	15
Fundamental Processes and Retinal Disorders	
Photoreceptors, Visual Pigments, and Transduction	82
Retinal Pigment Epithelium	35
Retinal Organization, Neurotransmission, and Visual Function	72
Noninvasive Techniques in the Study of Retinal Disorders	1
Special Areas of Interest	
Toxic, Nutritional, and Environmental Disorders	5
Low Vision	2
Tissue Acquisition and Distribution: Human Donor Eyes and Animal Models	0
Total	348

Panels Four and Five (Cont'd)

Corneal Diseases Program

Subprograms	Number of Grants
External Ocular Infections and Inflammatory Disease	49
Ocular Surface Problems	36
Refractive Problems and Contact Lenses	5
Corneal Edema, Endothelial Dysfunction, Dystrophies, and Inherited Disease	20
Corneal Transplantation and Stromal Wound Healing	34
Total	144

Panels Four and Five (Cont'd)

Cataract Program

Subprograms	Number of Grants
The Normal Lens	40
Epidemiology of Cataracts	0
Senile Cataract	23
Diabetic and Metabolic Cataract	14
Nongenetic Congenital and Genetic Cataract and Dislocated Lenses	9
Cataract Induced by Environmental and Toxic Effects	9
Treatment of Cataract and Correction of Aphakia	3
Total	98

Panels Four and Five (Cont'd)

Glaucoma Program

Subprograms	Number of Grants
Aqueous Humor Dynamics: Inflow	25
Aqueous Humor Dynamics: Outflow	25
The Optic Nerve	12
Primary Open-Angle Glaucoma	11
Angle-Closure Glaucoma	0
Developmental, Congenital, or Infantile Glaucoma	1
Secondary Glaucomas	3
Total	77

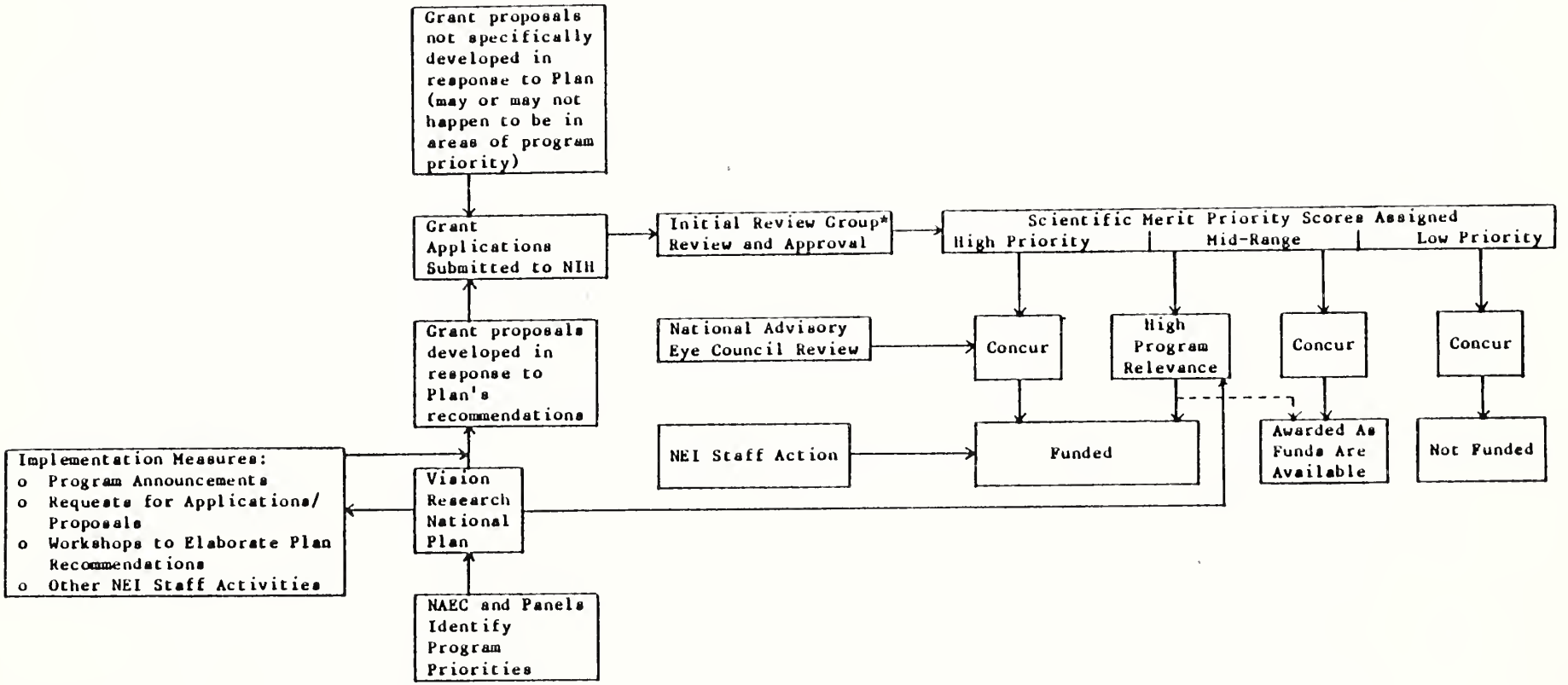
Panels Four and Five (Cont'd)

Strabismus, Amblyopia, and Visual Processing Program

Subprograms	Number of Grants
Visual Processing and Amblyopia	
Normal and Abnormal Development	68
Structure and Function	95
Disorders	27
Ocular Motility and Strabismus	
Normal and Abnormal Development	4
Structure and Function	31
Disorders	19
Optics and Refractive Errors, Including Myopia	6
Total	250

INTERPLAY OF NEI PROGRAM PRIORITIES AND SCIENTIFIC PRIORITY SCORES

The program priorities established in the National Plan and the NIH scientific merit priority scores both help determine which grant applications NEI will fund. All applications with high scientific merit priority scores are funded regardless of their relevance to program priorities. Some applications with mid-range scores judged to be highly relevant to program priorities are singled out and placed in a better funding position than they would have been on the basis of the score alone.


Grant proposals not specifically developed in response to Plan (may or may not happen to be in areas of program priority)
Grant Applications Submitted to NIH
Initial Review Group* Review and Approval
Scientific Merit Priority Scores Assigned
High Priority
Mid-Range
Low Priority
Grant proposals developed in response to Plan's recommendations
National Advisory Eye Council Review
Concur
High Program Relevance
Concur
Concur
Implementation Measures:
o Program Announcements
o Requests for Applications/ Proposals
o Workshops to Elaborate Plan Recommendations
o Other NEI Staff Activities
Vision Research National Plan
NEI Staff Action
Funded
Awarded As Funds Are Available
Not Funded
NAEC and Panels Identify Program Priorities

* Study Sections of NIH Division of Research Grants or NEI Vision Research Program Committee

APPENDIX 8

SAMPLE RESOURCE TABLE

RETINAL AND CHOROIDAL DISEASES

Resource Tables
(Dollars in Thousands)

Subprograms	FY 1981 Grants*		Panel Recommendation FY 1983 Add. Grants		Total Grants		FY 1982 Grants
	Cost		Cost		Cost**		Cost
VASCULAR, INFLAMMATORY, AND NEOPLASTIC DISORDERS OF THE RETINA AND CHOROID							
1. Diabetic Retinopathy, Sickle Cell Retinopathy, and Other Vascular Abnormalities	51 $5,127	(13%)	9 $1,131	(8%)	60 $6,300	(12%)	55 $5,522
2. Inflammatory Disorders	14 $1,558	(4%)	11 $1,067	(10%)	25 $2,625	(5%)	16 $1,406
3. Tumors	18 $1,887	(5%)	11 $1,158	(10%)	29 $3,045	(6%)	21 $2,005
DEGENERATIVE DISORDERS OF THE RETINA							
4. Developmental and Hereditary Disorders	42 $3,809	(11%)	17 $2,386	(15%)	59 $6,195	(12%)	44 $4,255
5. Macular Degeneration	18 $1,418	(5%)	16 $2,152	(14%)	34 $3,570	(7%)	19 $1,354
6. Retinal Detachment and Vitreous Disorders	18 $1,722	(5%)	9 $1,113	(8%)	27 $2,835	(5%)	20 $1,870
7. Toxic and Environmental Disorders	2 $91	(1%)	2 $329	(2%)	4 $420	(1%)	3 $136
FUNDAMENTAL PROCESSES AND RETINAL DISORDERS							
8. Retinal Pigment Epithelium	24 $1,931	(6%)	13 $1,954	(12%)	37 $3,885	(8%)	21 $1,827
9. Photoreceptors, Visual Pigments, and Phototransduction	112 $9,514	(29%)	0 $2,246	(0%)	112 $11,760	(23%)	131 $11,139
10 Retinal Organization, Neurotransmission, and Adaptation	64 $4,729	(16%)	7 $2,726	(6%)	71 $7,455	(14%)	68 $5,407

* Includes R01, R10, R23, P50, K04, and K07 mechanisms.
** Estimated average cost of grants in Retinal and Choroidal Diseases program for FY 1983 is $105,000.

RETINAL AND CHOROIDAL DISEASES

Resource Tables
(Dollars in Thousands)

Subprograms	FY 1981 Grants* Cost		Panel Recommendation FY 1983 Add. Grants Cost		Total Grants Cost**		FY 1982 Grants Cost
11. Glial Cells and the Retinal Microenvironment	6 $437	(1%)	3 $508	(3%)	9 $945	(2%)	6 $351
12. Rescue and Regeneration of Neurons in the Optic Nerve and Retina	2 $136	(1%)	5 $599	(5%)	7 $735	(1%)	1 $106
RELATED AREAS OF RESEARCH OPPORTUNITY AND NEED							
3. Noninvasive Techniques in the Study of Retinal Disorders	10 $1,176	(3%)	8 $714	(7%)	18 $1,890	(4%)	8 $718
4. Tissue Acquisition and Distribution: Human Donor Eyes and Animal Models	[0] —		[6]*** —		[6]*** —		
TOTAL	381 $33,535	(100%)	111 $18,083	(100%)	492 $51,660	(100%)	413 $36,096

** Grants counted elsewhere within Retinal and Choroidal Diseases.

APPENDIX 9

MODEL OUTLINE OF PANEL REPORT GENERAL OUTLINE

August, 1981

Model Outline of Panel Report General Introduction

The following is an outline of the general Introduction to each panel report. Much of if can be developed by highlighting and combining material from equivalent sections of individual subprogram/area reports. The Introduction should be 15 to 25 double-spaced pages long.

A. Introduction

(The following items should all be included in this section when appropriate; however, they need not be split out as subheadings.)

- Description of the major disorders or research areas encompassed by the program as a whole.
- Importance of these disorders as public health problems and/or importance of the research fields and their relevance to disease problem(s).
- Available data on incidence, prevalence, and costs of these disorders (taken from subprogram write-ups).
- General state of knowledge in the program (what we know and do not know; what we can do and cannot do).
- Relationship of research in the program to other ocular or systemic disorders or areas of research (within vision research or biomedical research in general).

B. Program Goals

- These should be few in number. They should begin with the word "to" followed by an action verb. They should state the long-term aims of the entire program in very broad terms. In the aggregate they should encompass all of the objectives listed in subprogram chapters.

C. Overview of Current Research Support

- Brief narrative summary of the kinds of ongoing research supported by NEI and other organizations in the program.
- Strengths of and gaps in this support in terms of how it is or is not helping to meet the above goals.

D. Recent Accomplishments

- These should be selected from subprogram/area write-ups. Where appropriate, indicate how these accomplishments help fulfill program goals.

E. Research Needs, Opportunities, and Possible Approaches

- o Summarize the major needs and opportunities listed in the subprogram chapters.

F. Research Training Needs

- o Discuss specific needs (e.g., mechanisms, types of training, kinds of manpower) for training to fulfill the program's goals and objectives.

G. Priorities

- o Summarize priorities listed in each individual section.

H. Resource Requirements

- o Summary of Subprogram Resource Requirements in tabular form.

APPENDIX 10

PROGRAM RELEVANCE DECISIONS

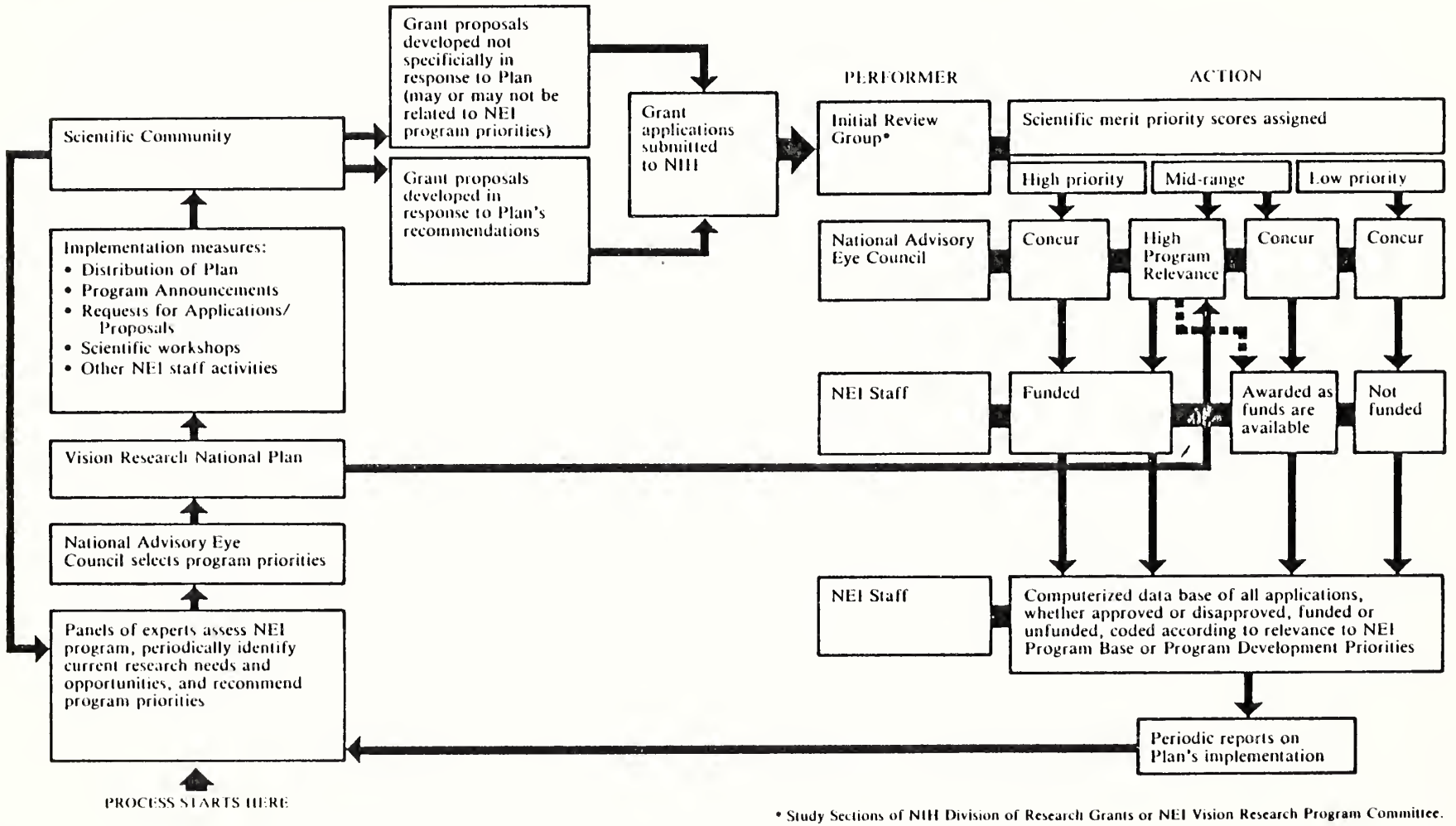

Grant proposals developed not specifically in response to Plan (may or may not be related to NEI program priorities)
Grant proposals developed in response to Plan's recommendations
Grant applications submitted to NIH
PERFORMER
ACTION
Scientific Community
Initial Review Group*
Scientific merit priority scores assigned
High priority
Mid-range
Low priority
National Advisory Eye Council
Concur
High Program Relevance
Concur
Concur
Implementation measures:
• Distribution of Plan
• Program Announcements
• Requests for Applications/ Proposals
• Scientific workshops
• Other NEI staff activities
NEI Staff
Funded
Awarded as funds are available
Not funded
Vision Research National Plan
National Advisory Eye Council selects program priorities
NEI Staff
Computerized data base of all applications, whether approved or disapproved, funded or unfunded, coded according to relevance to NEI Program Base or Program Development Priorities
Panels of experts assess NEI program, periodically identify current research needs and opportunities, and recommend program priorities
Periodic reports on Plan's implementation
PROCESS STARTS HERE
* Study Sections of NIH Division of Research Grants or NEI Vision Research Program Committee.

CHART. National Eye Institute Program Planning System. Both the NIH scientific merit priority scores and the program priorities established in the National Plan help determine which grant applications NEI will fund. All applications with high scientific merit priority scores are funded regardless of their relevance to program priorities. Some applications with mid-range scores and judged to be highly relevant to program priorities are singled out and placed in a better funding position than they would have been on the basis of the score alc

SUMMARY FACTUAL

DESCRIPTION OF THE

PLANNING PROCESSES OF THE

NATIONAL INSTITUTE OF NEUROLOGICAL AND COMMUNICATIVE DISORDERS AND STROKE

"STUDY OF THE PLANNING PROCESSES AT NIH"

NIH Contract Number 1-OD-2-2122

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1. NATIONAL INSTITUTE OF NEUROLOGICAL AND COMMUNICATIVE DISORDERS AND STROKE ITS MISSION AND ORGANIZATION

The National Institute of Neurological and Communicative Disorders and Stroke (NINCDS) is one of the eight Institutes among the 18 Bureaus, Institutes and Divisions (BIDs) in the National Institutes of Health (NIH).

A. MISSION

NINCDS was originally established as the National Institute of Neurological Diseases and Blindness in 1950, under Public Law 81-692. In 1968, under Public Law 90-489, the blindness program became the nucleus of the newly created National Eye Institute and the name National Institute of Neurological Diseases was adopted. Later that year (October, 1968), Public Law 90-636 changed the name to the National Institue of Neurological Diseases and Stroke. Finally, on March 14, 1975, a DHEW Statement of Organization, Functions, and Delegations of Authority was amended to change the title to the National Institute of Neurological and Communicative Disorders and Stroke.

The mission of NINCDS is "to support research, research training, and clinical trials, and to conduct research and clinical training in neurological and communicative disorders and stroke."

The Institute does not have a legislatively mandated public education responsibility, although the Office of Scientific and Health Reports provides a wide variety of pamphlets, exhibits, and replies to correspondence for the public.

The mission of the Institute is to fund research in the areas of neurological and communicative disorders. Within that broad mission, it is necessary for the Institute to identify the principal gaps in fundamental knowledge about these disorders. Thus, while basic research is the principal concern of the Institute, it also is interested in applied research, clinical trials, prevention and treatment, etc.

B. PROGRAMS AND ORGANIZATION

The NINCDS is organized into seven scientific program areas and four management and support offices, all reporting to the Office of the Director (see Exhibit 1). The program areas are:

- Stroke and Central Nervous System Trauma
- Communicative Disorders
- Fundamental Neurosciences
- Convulsive, Developmental and Neuromuscular Disorders
- Demyelinating, Atrophic and Dementing Disorders
- Extramural Activities
- Intramural Activities

The first five of these programs supports research and research training in its subject area. The Extramural Activities Program provides administrative support and scientific and technical merit review for contracts and grants.

The Intramural Research Section comprises 16 laboratories and branches, with facilities on the NIH campus, and in Ft. Detrick, MD, Woods Hole, MA, and on the island of Guam.

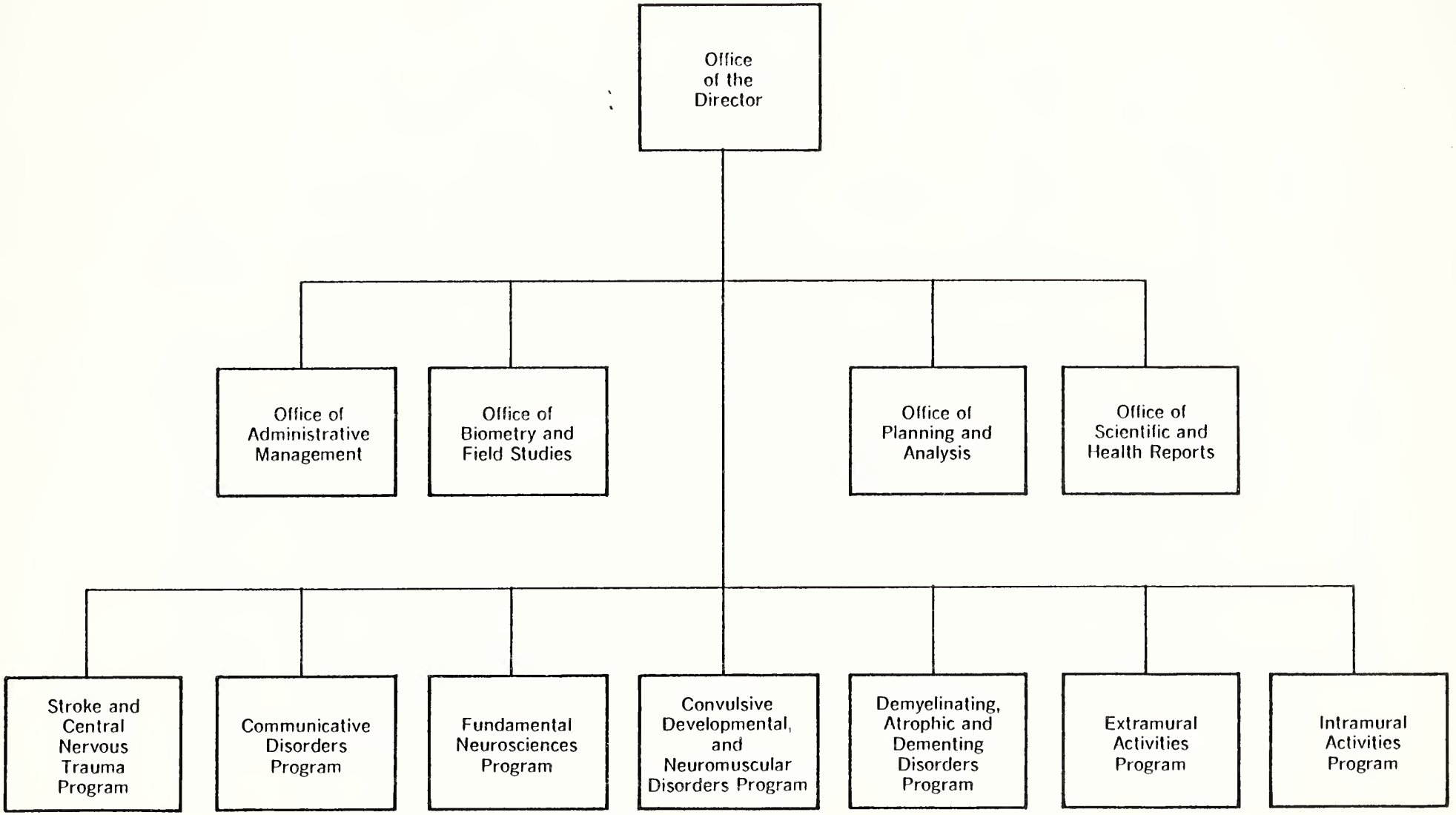
To implement its programs, the NINCDS uses five different mechanisms:

- Grants for research projects, program projects and centers;
- Contracts for research and research support;
- Training support to institutions and fellowships to individuals;
- Intramural and collaborative research; and
- Collection and dissemination of research information.

In addition to these programs, the three offices providing management and administrative support are:

- Office of Administrative Management
- Office of Planning and Analysis
- Office of Scientific and Health Reports

Exhibit NINCDS-1
NINCDS Organizational Structure


Office of the Director
Office of Administrative Management
Office of Biometry and Field Studies
Office of Planning and Analysis
Office of Scientific and Health Reports
Stroke and Central Nervous Trauma Program
Communicative Disorders Program
Fundamental Neurosciences Program
Convulsive Developmental, and Neuromuscular Disorders Program
Demyelinating, Atrophic and Dementing Disorders Program
Extramural Activities Program
Intramural Activities Program

These offices, with the Office of the Director, provide the following services:

- Planning
- Evaluation
- Budget
- Personnel
- EEO
- Legislation
- Congressional Liaison
- Information Dissemination

2. OVERVIEW OF THE NINCDS PLANNING COMPONENT

A. THE ROLE OF PLANNING

The basic role of planning in NINCDS is to set forth in a clear and coherent fashion the difficulties, opportunities, needs and options for fulfilling the Institute's mission.

Within the context of this role, planning becomes most useful when dealing with budgetary limitations, since it can truly help to make decisions about what to fund and what not to fund at the marginal areas of program implementation and grant funding.

The NINCDS Planning Office describes the following as the objectives of planning:

- To identify research opportunities;
- To identify research options;
- To identify research strategies;
- To identify research needs; and
- To satisfy long-standing NIH/PHS/DHHS requirements.

Of these, the identification of research opportunities and needs were identified as the most important of the objectives. Strategies are seen as less important, since the Institute has very limited control over its grant funds due to the peer review system. Even in cases where the Institute has attempted to direct research into areas of interest, its success has been determined by the extent of interest in the research community. For example, a recent NINCDS RFA called for applications for research on stroke. This was a result of the Institute staff's determination that additional research was needed in this area. However, the number of applications for research on stroke did not increase significantly after the RFA was publicized.

The importance of the research needs and objectives has increased with the recent Congressional requirement that the Institute prepare a study of research needs and opportunities.

Although the identification of opportunities and needs was described as the most important objective, the most time-consuming objective was the fulfillment of the NIH/PHS/DHHS requirements.

The Institute conducts the following types of planning activities:

- The National Research Strategy
- Annual Research Plan
- Implementation Plan
- Ad hoc Planning
- ADP/TC Plan
- Evaluation Plan
- Legislative Planning
- Annual Report
- Budget

1. National Research Strategy

The Strategic Plan is the result of requirements of Congress as well as the scientific community. It was prepared in 1978 and was meant to cover strategies through the 1980's. Because of a Congressional mandate for a study of research needs and opportunities, the Institute is preparing to develop a new Strategic Plan, which will focus on areas of scientific opportunity. The hope is that the results of this effort can be used as a base from which more detailed work on the state-of-the-science, research directions, etc., can be carried out.

2. Annual Research Plan

The NINCDS Research Plan fulfills the NIH-wide requirement for such a Plan. Its form and schedule also reflect NIH requirements.

3. Implementation Plan

The Annual Implementation Plan is meant to set forth programmatic activities for the coming year and to serve as a guide for budget allocation.

The Implementation Plan was established by a former director who believed that existing planning documents for external reporting did not fill internal planning needs, particularly in regard to budget allocations. The Implementation Plan requests program directors to provide information on costs for current commitments, as well as for contracts, which are ranked according to those considered necessary within current budget limitations, and those which would be useful if money were available.

4. Ad Hoc Planning

Ad hoc Planning is carried out by the Planning Office in reaction to unpredictable needs. An example of Ad hoc Planning is the recent request by the House of Representatives to document unexploited opportunities in its research interest areas. Such Ad hoc Planning is performed by the Planning Office in a manner fitting the individual need.

Ad hoc Planning can be viewed as a part of a larger role for the Planning Office, which is to provide a variety of types of assistance to the Director. Furthermore, the Office acts in a liaison capacity with the research community and other organizations interested in the NINCDS areas of concern. There are frequent requests for information from these groups which take on characteristics of planning. For example, an organization of scientists may request information on current and future funding activity in a specific program area.

5. ADP/TC Plan

The ADP/TC Plan is looked upon as an administrative requirement, and no particular processes are involved in its preparation.

6. Evaluation Plan

The Evaluation Plan corresponds to the PHS requirement. It is prepared by the Office of Planning and Analysis, although program officers (HSAs) provide some of the initial write-ups of proposed projects.

7. Legislative Plan

A Legislative Plan is currently in process. The process is expected to be devised by summer, 1983.

8. Annual Report

The Annual Report contains information on the activities and highlights of each NINCDS office and program in the previous year. It includes basic data on each program and grant. Although it does not specifically include a planning component, a program director may include prospective projects and other plans for the upcoming year.

Furthermore, the information in the program reports has the potential for planning use, since it provides descriptions of projects, state-of-the-science, and other text which can be used in other planning documents.

9. Budget

The Budget has critical data for planning processes, though it is not in itself a planning document. The Budget Officer attends selected planning and programming meetings, and is instrumental in determining the budgetary content of planning documents. In the NINCDS, budget considerations are seen as driving planning decisions, rather than vice versa.

3. THE PLANNING OFFICE

A. ORGANIZATION

The Office of Planning and Analysis is headed by the Chief and Deputy Chief. It consists of two sections: the Analysis and Reports Section (AAS), and the Management Information and Data Section (MIDS).

The OPA staff consists of the following personnel:

	Professional	Part-Time	Support
Office of the Chief	3		2
ARS	4		1
MIDS	7	1	1
	14	1	4

The remaining professional staff members (5) are GS-11 or below.

B. FUNCTIONS

All of the planning activities and/or products mentioned in Section 2 are the direct responsibility of the NINCDS Planning Office, with the exception of the budget, which is prepared by the Budget Office. However, other key OD staff are integral in preparing essential planning documents, such as the Implementation Plan and Research Plan.

The Planning Office is also responsible for a variety of other activities. These include:

- Trans-NIH issues
- Legislative Analysis
- Evaluation
- Interagency Committees
- Program Analysis

- Ad hoc Reports
- Interaction with the scientific community regarding Congressional and policy issues
- Compilation of Council-related information for the Director

The OPA staff is also responsible for program and legislative analysis. For the former, the OPA maintains the Institute's scientific data base and performs standard trend analyses, prepares the Director's Congressional presentations, and writes other analyses of Institute's programs, usually with assistance from program personnel. For legislative concerns, the OPA staff tracks the status of relevant legislation, prepares the Institute's positions on legislative initiatives, tracks relevant bills, etc.

As mentioned above, the OPA also acts as the Institute's liaison with research and public organizations which are concerned with the NINCDS program areas.

C. KEY ACTORS IN THE NINCDS PLANNING PROCESS

The primary actor in the development of planning at the NINCDS is the OPA, which is involved in practically all cyclical and non-cyclical planning activities. The office has responsibility over a broad range of planning activities, from analyzing data and coordinating planning activities in the Divisions, to preparing the final documents for those processes which develop a written plan.

The Division staff becomes involved in all program planning activities (the Annual Research Plan, Implementation Plan, and the Evaluation Plan). Their contribution, especially for the Annual Research Plan and the Implementation Plan, include development of text for the plans. Much of this text involves explanations or descriptions of current and projected research activities.

For the most recent strategic planning process (see Section 4A), the Institute recruited outside experts in its program areas to participate in a series of panels which focused on specific research topics and task forces which focused

on cross-cutting issues. Each of these groups met to prepare assessments of the state-of-the-science, research needs, and recommendations for future research for their respective topics. In addition, a Public Forum collected and reported on the concerns of voluntary health organizations and the public. The reports from these groups were collected and published by the NINCDS as its National Research Strategy for Neurological and Communicative Disorders.

The NINCDS maintains several advisory groups for the conduct of its programs. The National Advisory Neurological Diseases and Blindness Council was chartered in 1950. In 1973, PL 92-463 chartered the National Advisory Neurological Diseases and Stroke Council. The name was changed in 1975 to the National Advisory Neurological and Communicative Disorders and Stroke Council.

The Council consists of 16 members appointed by the Secretary, DHHS, as well as the Director, NIH, the chief medical office of the VA and a representative of the Secretary of Defense. The Council has one standing committee, called the Council Planning Subcommittee, which is related to grant review. This Subcommittee does not do planning in the formal sense. Instead, it is used to raise any sensitive and controversial questions which might need to be presented to the full Council, and attempts to generate a concensus regarding policy toward these sensitive issues.

The OPA's only involvement with the Council is attendance at its meetings. Seldom, if ever, is any planning document requested by or directed to the Council. The NINCDS also has a Board of Scientific Counselors as well as four review groups.

D. INTERRELATIONSHIPS OF THE PLANNING OFFICE WITH OTHER ORGANIZATIONS

The Office is very closely involved with trans-NIH and inter-agency activities, since it has Institute responsibility for these. The Office has an M.D. on staff who has been with the Institute many years, and is well informed about its programs. This physician acts as the NINCDS liaison to most inter-agency committees and task forces. He draws upon program personnel for specific informational requirements for these committees. This inter-agency liaison work is his principal area of responsibility.

There is a limited relationship between planning and programming activities. However, the OPA does not routinely provide proactive planning assistance to the programs.

Some indirect relationships do exist. The Institute Director is informed of issues, analyses, and other significant data, and he may act upon these if the situation warrants. The increasing importance of the MIDS data system should improve program directors' knowledge of trends in program directions, and thus influence programming decisions.

4. DESCRIPTION OF SPECIFIC PLANNING PROCESSES

This section of the paper presents narrative descriptions of the planning processes used in the Institute. The processes described here include:

- Strategic Planning
- Annual Research Plan
- Implementation Plan
- Ad Hoc Planning Processes
- Evaluation Planning Processes
- Legislative Planning
- Annual Report
- Budget Planning
- Special Considerations Grants Process.

The purpose of each of these processes is described above in Section 2.A.

A. STRATEGIC PLANNING

As mentioned earlier, the Institute is preparing a report for Congress on significant research needs and opportunities. This in turn will possibly be used as a foundation for a revision and update of the Strategic Plan described below.

The most recent major strategic planning activity was in 1979 when the National Research Strategy for Neurological and Communicative Disorders was published. Seven professional panels were formed in late 1977 by the Institute and the Advisory Council. These panels represented the following seven research areas:

- Development Disorders
- Inflammatory, Demyelinating, and Degenerative Diseases
- Convulsive and Neuromuscular Disorders
- Stroke, Trauma, Regeneration, and Neoplasms
- Pain
- Communicative Disorders
- Neurological Aspects of Behavior

Two additional task forces, on basic research and epidemiology, also were formed. Each panel and task force performed the following activities for its research area:

- Prepared a detailed assessment of the state of knowledge and magnitude of the problem,
- Listed research needs, and
- Made recommendations for future research.

In addition, a Public Forum, composed of members of the public as well as representatives of health voluntary organiztaions, provided input from the lay community.

The recommendations and reports of the task forces, professional panels, and forum were reviewed and consolidated by Institute staff and the Advisory Council. A total of 107 research goals divided among seventeen sub-areas were identified from these reports, and an Executive Summary document was prepared by staff.

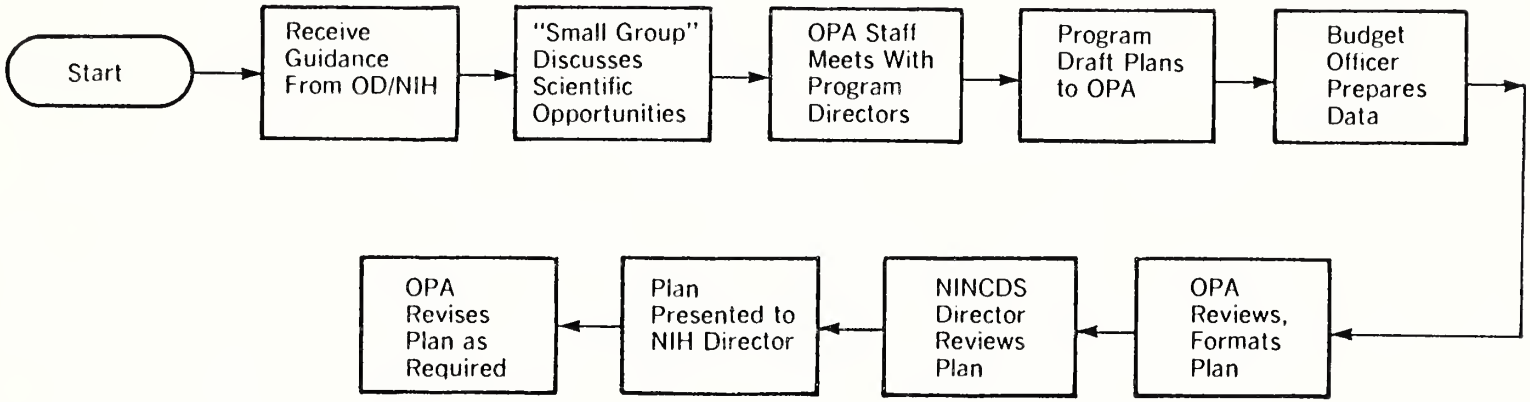
No attempt was made to set priorities among these 107 goals. In the Institute's judgement, all goals were "equally valid". However, the implementation plan and the budget process were identified in the Strategy's Executive Summary as the methods by which optimal allocations among research areas and goals would be made. These funding decisions would be determined through "ongoing evaluation and budgetary adjustment through the normal process of the program staff's working together and with the administrative, legislative, and budget management personnel concerned".

B. ANNUAL RESEARCH PLAN

The research plan is the most important product of the overall planning process at the NINCDS. It is the document required by OD, NIH for its planning purposes.

The course of events to develop this Plan is graphically sketched in Exhibit 2.

Exhibit NINCDS-2
Process for Developing the NINCDS Component of the NIH Research Plan


Start
Receive Guidance From OD/NIH
"Small Group" Discusses Scientific Opportunities
OPA Staff Meets With Program Directors
Program Draft Plans to OPA
Budget Officer Prepares Data
OPA Reviews, Formats Plan
NINCDS Director Reviews Plan
Plan Presented to NIH Director
OPA Revises Plan as Required

To begin the process, the OPA receives a guidance package from OD/NIH, and determines changes from the previous year. A "small group" of NINCDS managers, made up of the Director, Deputy Director, Executive Officer, Planning Officer, and Budget Officer, hold a meeting to determine which scientific opportunities should be emphasized at the meeting with the NIH Director, and thus be included in the Research Plan. These determinations are made based on the small group member's though understanding of current program activity.

The Planning Officer and another OPA staff member knowledgable about Institute programs then meet with Program Directors or their representatives and ask them to prepare reports or issues papers on the scientific opportunities highlighted in the small group meeting. They also request the program representatives to volunteer additional opportunities or other data which would be relevant to the research plan. Due to the very severe time constraints (5-7 days for preparation of the draft), much of the meeting time is over the telephone.

Drafts of issues are submitted by program staff to the OPA, which provides supporting narrative, conformance to OD/NIH format requirements, and final preparation of the report. The Budget Officer prepares the financial data on current commitments and projected costs of programs. Due to the recent change in procedures instituted by the new NIH Director, less emphasis is now placed on the budgetary content of the Plan and more on the scientific content.

The NINCDS Director reviews the Plan and makes additional changes. These are usually completed by the OPA, which also puts it into final format. If there is a question which cannot be adequately answered by the OPA staff, it is referred to the appropriate program person.

The Director reviews and approves the final plan prior to presentation to the NIH Director. The plan is presented to the NIH Director and discussed, with emphasis being placed on scientific opportunities.

Because of the recent changes in the NIH research planning process, it is unclear whether further revisions to the Plan will be required following the oral presentation to the NIH Director. If it is necessary to revise the document, the OPA will have principal responsibility for its completion.

C. IMPLEMENTATION PLAN

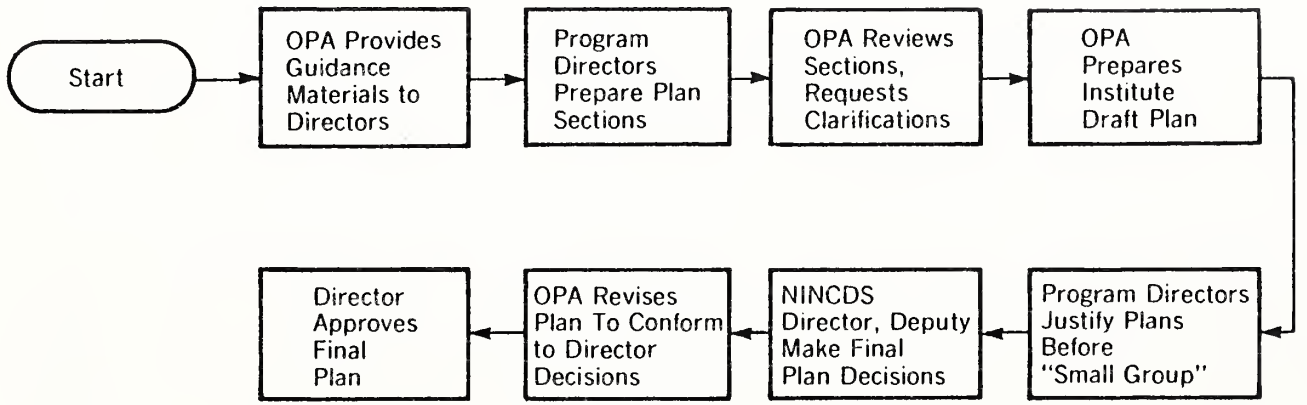
The Annual Implementation Plan is prepared with the Planning Office taking the lead role. The decision-making functions are done by the "Small Staff," which consists of the Director, Deputy Director, Executive Officer, EEO Officer, Information Officer and the Planning Officer. As mentioned above, this group is well-informed about Institute's operations and activities, since it meets biweekly to discuss Institute policy and short-term planning. The Plan consists of the following sections:

- Introduction, including program initiatives, expected problems, staffing requirements, and estimates of fiscal needs.
- Contracts Summary
- Contract Projects, describing each project
- Grant Initiatives (Proposed RFA's, RFCA's, and Program Announcements)
- Type II Grants
- Training Initiatives
- Intramural Research Programs

The NINCDS Implementation Plan resulted when a previous Institute Director determined that the Plans generated for external requirements were not meeting the actual planning needs of the NINCDS. Therefore, the Implementation Plan process was begun. It is considered the most important tool in the Institute for decisions on budget allocation, which in turn are seen as an important influence on planning.

For the development of the Implementation Plan (see Exhibit 3), the following steps are followed:

Exhibit NINCDS-3
The NINCDS Implementation Planning Process


Start
OPA Provides Guidance Materials to Directors
Program Directors Prepare Plan Sections
OPA Reviews Sections, Requests Clarifications
OPA Prepares Institute Draft Plan
Program Directors Justify Plans Before "Small Group"
NINCDS Director, Deputy Make Final Plan Decisions
OPA Revises Plan To Conform to Director Decisions
Director Approves Final Plan

The OPA prepares guidance for the Program Directors to prepare their part of the Implementation Plan. The guidance is accompanied by a memo from the NINCDS Director. The 1983 Plan cover memo begins, "As you know, I regard the NINCDS Implementation Plan as one of the Institutes' most effective management tools."

Each Program Director prepares his or her section of the Plan. The draft plans are reviewed by the OPA for adequacy and compliance to the guidance memo. If additional information or clarifications are required, the Program staff is requested to provide it. After the divisions supply additional materials, the OPA collates and prepares the draft Implemantation Plan.

Review sessions are then held with each Program Director and Program Office Chief. These sessions are attended by the Director, Deputy Director, Planning Officer, Executive Officer, and Director of Extramural Activities, with the Information Officer sitting in as an observer. These meetings delve further into the specific needs for each proposed new contract or grant activity, and are meant to achieve concensus for setting priorities between and within Programs.

The Institute Director, with the Deputy Director, make final decisions concerning acceptance of marginal projects and activities for each Division and Office. The OPA then revises the Implementation Plan to conform to the Director's decisions. The Implementation Plan receives final review and approval by the Director.

D. AD HOC PLANNING PROCESSES

Ad hoc Planning by its nature is determined by the emergencies of the moment, and no standard process is utilized. The ADP Plan is seen as a routine paperwork requirement, and no specific information-gathering or review processes are used to complete it.

E. EVALUATION PLANNING PROCESS

The Evaluation Planning process (Exhibit 4), prepared in response to DHHS requirements, has undergone some change recently due to budget cut-backs. The erosion of contract dollars at NINCDS has resulted in greater interest in procuring additional money through the 1% set-aside mechanism.

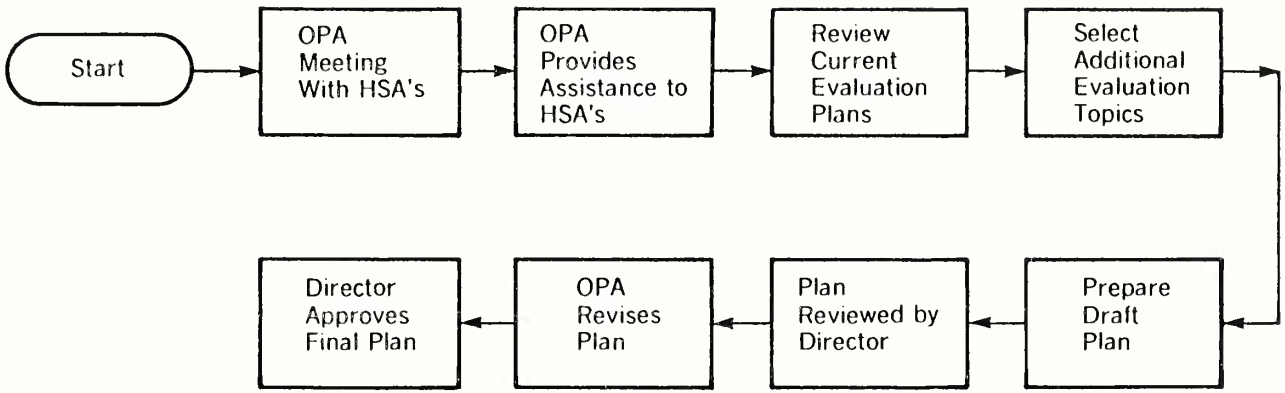
The Institute has an overall evaluation scheme within which particular evaluation projects might be fit, although this scheme is set informally through discussions with the Advisory Council and among "small group" members. Also, there has been a considerable effort by the OPA to make the Program Staff more aware of evaluation funds, and to revise some project plans to make them more in conformance with evaluation set-aside requirements.

To begin the process, the OPA staff meets with any of the Institute's Health Science Administrators (HSA's) who are interested in preparing a proposal for evaluation funds. Attendance at this year's meeting was described as "good." At this meeting, the OPA staff explains the requirements for evaluation of projects using 1% set-aside funds, and offers the OPA's assistance to any HSA who wishes to prepare a project proposal. Guidelines from OD/NIH about qualifications are explained, as is the possibility to redirect previously planned projects in such a way as to make them eligible for set-aside funding.

For those HSA's who expressed an interest in proposing an evaluation project, the OPA reviews their draft to make it more in keeping with evaluation terminology. This is seen as necessary because the HSA's are not likely to be able to write a justification for a project in language acceptable to the PHS evaluation staff. The OPA also writes drafts of project proposals for the administrators, when requested.

Several prospective projects already planned through the regular contracting process are reviewed by the OPA. This review is meant to determine whether some of these could be re-written or redirected in such a way as to meet the

Exhibit NINCDS-4
The Annual NINCDS Evaluation Planning Process



qualifications for evaluation set-aside money. In addition to evaluations proposed or suggested by program staff, the OPA staff usually has several program aspects which it wishes evaluated. These are also written up and included in the Plan. The OPA staff combines the sections it prepares with those from program staff. There is no "grand scheme" for ranking evaluation projects; it is completed by the OPA and ranked according to the Office's general knowledge of the programs, and informal conversations with the Director. Furthermore, various subcommittees of Council have conducted an on-going evaluation of program activities, and suggestions from these serve as guidelines for selecting priority evaluation projects.

The draft Plan is reviewed by the Institute Director and the Acting Deputy Director, who make further suggestions concerning program priority. The revisions to the Plan are completed by OPA staff, unless additional data are required from the program staff. Following revision, the final Plan is approved by the Director, usually by means of a formal memo.

F. LEGISLATIVE PLANNING

As previously stated, a process for Legislative Planning is now under development. The current activities in this area are ad hoc in nature, such as the consulting of the Management Information and Data System (MIDS) data base to determine potential impact of legislation on programs.

G. ANNUAL REPORT

The Annual Report is developed in response to NIH requirements for such a document. It is the responsibility of the Analysis and Report Section of the OPA. However, it is primarily a task of collation and editing. Some analysis is required, because intramural programs must be coded and categorized for the MIDS.

The Annual Report is not a planning document from the point of view of predicting or outlining future research directions. However, the introductions to the

various programs often contain valuable information for planning purposes, and sections of the Annual Report can be included in other planning documents on an as-needed basis.

H. BUDGET PLANNING

Budget Planning largely occurs in response to constant changes in DHHS and Congressional budget allocations, programmatic changes, and other factors. Budget questions are seen as critical in NINCDS planning since no budget figures -- and thus program planning suggestions -- can leave the Institute without the approval of the Budget Officer.

The contact between the Budget Office and the Planning Office is close. For example, the Budget Office is the most frequent user of the MIDS data bases. Frequent contact also occurs since budget-related materials come to the Planning Office, because of its responsibility for the legislative function.

I. SPECIAL CONSIDERATIONS GRANTS PROCESS

While not specifically identified as a planning activity, the special considerations grants process seems to have aspects of a planning process. The OPA is not directly involved in this process, however.

The ordinary grant review process greatly limits the Institute's flexibility program balance, or to respond to new opportunities. Therefore, the Institute sets aside 25 percent of its grant money for special consideration grants. These are grants which are approved but do not qualify for funding on the basis of priority score. Nevertheless, NINCDS staff consider these important to the Institute research program.

The Institute Director, Deputy Directors, and Program Directors discuss grants which merit special emphasis consideration. These people are the most knowledgeable about NINCDS programs, and can therefore select the grants with the greatest programmatic impact. These are presented to the Council, along with the reasons for their selection. The Council has final approval authority.

Although the Planning Office is not involved in this process, data and text from the special emphasis program is incorporated into the Research and Implementation Plans.

5. OUTCOMES OF AND BARRIERS TO PLANNING

A. OUTCOMES OF PLANNING

There are several aspects of planning which have useful outcomes for Institute activities.

Planning has an affect on the Institute mission, in that major changes in research direction revealed in the planning process will eventually make their way into the Institute's mission statement. In the same way, planning's identification of changes in research direction are useful in the administrative management of NINCDS; planning permits management to foresee and act on the need to adjust personnel, resources, and administrative procedures to conform better to the new research directions.

The NIH Research Plan submission was seen to have a strong influence on Institute procedures. It is presumed that the NIH Director's Review is used by NIH in some way to allocate discretionary funds to specific targets of opportunity. As a result, much thought and effort is devoted to the development of this plan. In turn, this effort helps Institute staff to focus the Institute's programs and policies toward the most important scientific opportunities. In addition, the Research Plan is utilized in the Budget planning process as the framework for allocation of funds among NINCDS programs.

The Implementation Plan also has important outcomes for Institute budgeting decisions, although the special emphasis program is the decision-making process through which the Institute has strongest control over program content. Nevertheless, the Implementation Plan assists management in the setting of priorities among initiatives proposed by the Programs.

Planning has other, less direct outcomes on Institute operations. Planning documents help to minimize paperwork requirements of Program staff and science administrators, because the OPA can draw on these documents to fulfill other

reporting requirements. The MIDS data base has also become an important tool for planning and administration; it also reduces paperwork loads as well as being useful in analysis of research trends, and in the budgeting process.

The budgeting process is regarded as the key planning document, both in the Institute and all of NIH. In the Institute, no plan or other document containing financial figures is complete until these figures are approved by the NINCDS Budget Officer.

B. BARRIERS TO PLANNING

Several barriers to NIH planning were noted:

- The belief that planning cannot be done in biomedical research, because of the serendipitous nature of scientific discovery.
- The belief that planning should not be done in biomedical research, because NIH is a grant-distributing organization.
- The belief that the only proper way to account for NIH funds is "to plan the spending of every penny."
- The belief that immutable processes and documents must be associated with planning. This was seen as a DHHS structural deficiency.
- The "long-standing and immutable dichotomy" between the budgeting function and the planning function. This was also considered to be a DHHS structural deficiency. It derives from the bureaucratic separation of programming and budgeting, two areas which cannot really be separated.

This conflicting list of beliefs by various groups within the NIH and DHHS communities results in a low esteem for program planning, either because it is seen as irrelevant to scientific discovery, or as a bureaucratic process required by regulations.

Another barrier to planning at NIH was described as the "institutional barrier." This barrier stems from the several different authorities to which the Institute's Planning Office must report, and the lack of coordination among these authorities. The institutional barrier is best described by some of its effects:

- Guidance for plans and data requirements are always sufficiently different that it is difficult to produce any plan without a great deal of effort. This is true both among different plans as well as for annual differences in any given plan.
- Time constraints, when coupled with the above-mentioned paperwork requirements, mean that true planning is overlooked in favor of mere production of a suitable document.
- Plans are meant first to fulfill requirements of higher-level authorities rather than the actual planning needs of any given Institute.

For these reasons, a cyclical planning process is considered counter-productive for the NINCDS, since the processes simply change too often for a stable cycle to exist.

6. SUMMARY AND CONCLUSIONS

The development of the Institute's segment of the NIH Research Plan, and the Implementation Planning Process, are the two most important planning processes in the NINCDS. The Research Plan is aimed at developing explanations of current research and justifications for proposed research initiatives. Division staff take an active role in preparing the Research Plan. The emphasis on scientific content appears to have become stronger in the past year, due to the greater focus on research issues during the annual program review by the NIH Director.

The Implementation Plan has been described as "one of the Institute's most effective management tools," and is important in making decisions about allocating funds. The Research Plan and the Implementation Plan are both prepared under direction of a "small group" of Institute managers who advise the NINCDS Director on research directions and budget allocations.

At the NINCDS, strategic planning has been used to identify research goals. It has not been specifically used for determining research priorities or funding allocations, or for evaluation of progress. These activities have been reserved for the Advisory Countil and Institute staff. As stated above, the Research Plan and the Implementation Plan are primary vehicles for decision-making in these activities.

In developing the most recent strategic plan, the Institite relied upon experts from the scientific community to determine research goals. A Public Forum of interested citizens and voluntary health organizations was also convened in order that the Plan could take into account the needs and concerns of the public.

The Institute is currently making preparations to undertake a new strategic plan, because of Congressional interest in an update of research opportunities. Details of this new strategic planning process have not yet been determined.

Planning at the NINCDS is viewed as having an effect on several aspects of the Institute's activities. At the NIH level, there is a presumption that the NIH Research Plan and program review have some effect on the allocation of funds among BID's. Therefore, preparation for the Research Plan is not taken lightly. Within the Institute, the Research Plan also is important in determining priorities among research programs. The Implementation Plan is used to determine the specific funding allocations among ongoing and new research initiatives.

The implementation process is buttressed by a special considerations grants program, by which the Institute is able to secure a program balance which is reflective of its planning decisions. The activities of the planning office are also viewed as important in minimizing the efforts of the Division staff in preparing paperwork and developing and analyzing data.

7. SOURCES OF INFORMATION

Data were gathered from written sources, including published documents as well as internal reports and memoranda, and from personal interviews with key NINCDS staff.

Personal Interviews:

Mr. Leroy G. Goldman, Chief, Office of Planning and Analysis
Dr. Louis H. Steinberg, Chief, Analysis and Reports Section

Documents:

Acting Director, NINCDS, Memorandum, "Fiscal Year 1983 Implementation Plan," February 25, 1982, National Institutes of Health, Bethesda, MD.

Director, NIH, Memorandum, "Requirements for OD Planning Process," November 16, 1982, National Institutes of Health, Bethesda, MD.

Goldstein, Murray, "National Institute of Neurological and Communicative Disorders and Stroke: Evaluation Plan, FY1983," (mimeographed manuscript), November 30, 1982, National Institutes of Health, Bethesda, MD.

National Institutes of Health, Division of Public Information, 1981 NIH Almanac, NIH Publication No. 81-5, Bethesda, MD.

National Institutes of Health, Office of Program Planning and Evaluation and Division of Research Grants, NIH Data Book: 1982, U.S. Government Printing Office, Washington, DC.

National Institute of Neurological and Communicative Disorders and Stroke, Annual Report: Fiscal Year 1981, December 1981, (no publication number), National Institutes of Health, Bethesda, MD.

National Institute of Neurological and Communicative Disorders and Stroke, Executive Summary of the National Research Strategy for Neurological and Communicative Disorders, NIH Publication No. 79-1911, June 1, 1979, National Institutes of Health, Bethesda, MD.

National Institute of Neurological and Communicative Disorders and Stroke, Fact Book: 1981, NIH Publication No. 82-1683, National Institutes of Health, Bethesda, MD.

APPENDIX 1

GUIDANCE FOR NINCDS IMPLEMENTATION PLAN

SAH

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service
National Institutes of Health

Memorandum

Date FEB 25 1982

From Acting Director, NINCDS

Subject Fiscal Year 1983 Implementation Plan

To Program Directors and Office Chiefs, NINCDS

As you know, I regard the NINCDS Implementation Plan as one of the Institutes' most effective management tools. It affords each of us the opportunity to think through and articulate our program plans for the forthcoming year. This process takes on added significance for all of us in the current economic climate in which continued support for all publicly-funded programs is being questioned with the kind of rigor which challenges each of us to examine our program plans critically. This memorandum provides guidelines for your proposed Implementation Plan for Fiscal Year 1983. As a general principle, your effort should use as its basic guidepost the President's Budget for Fiscal Year 1983. In that respect take care to note that any initiatives you propose for Fiscal Year 1983, which would of necessity entail modifications to that guidepost, will require thorough justification and will invite probing questions.

In addition, please be sure that your plans take care to highlight explicitly those aspects which are designed to further the Secretary's commitment to strengthen and expand the contribution of biomedical research to the prevention of neurological and communicative disorders and stroke.

I also would like you to identify in your plan those activities which will involve molecular neurogenetics.

For contracts, I expect that you will devote considerable thought to the articulation of expected accomplishments for each contract. This was a feature of last year's plans that was not as complete as we hoped. The contract section of this year's plan also requires you to address those projects which you plan to begin in Fiscal Year 1984. This will help us to review your proposed contract projects for Fiscal Year 1983 more intelligently and to develop the preliminary Fiscal Year 1984 budget request.

Finally, I would like to draw your attention to two other features of this year's plan. For the first time, I am requesting that a plan be developed respecting the Institute's Training Program. The responsibility for this new initiative will reside with the Chairman of the Training Board. Secondly, you will note that a new format has been provided for intramural research, which is intended to illuminate better that key aspect of the Institute's effort.

In the main, however, your Fiscal Year 1983 plan should be developed with the same basic structure and format which we used last year. This structure is included in the attachments to my memorandum which include:

1. A brief (1-3 page) introduction should provide a general statement describing program initiatives, suspected or anticipated problems and their proposed resolution, organizational staffing proposals with resource requirements, and methods of estimating fiscal and staff needs.

2. Contracts Summary - a summary table of all contracts which will be individually described in item 3 requirement below.

3. Contract Projects - information on each project.

4. Grant Initiatives - information on each new initiative to be announced through RFA's, RFCA's (cooperative agreements), and Program Announcements.

5. Type II Large Grants - those exceeding $150,000 in direct costs.

6. Training Initiatives - to be prepared by Chairman, Training Board.

7. Intramural Research Program - applicable to IRP only.

8. Other Objects

Ten copies of your completed plan should be received by March 24, 1982, in the Office of Planning and Analysis which will coordinate the OD review. The review sessions with Program Directors and Office Chiefs have been scheduled in the 8th floor conference room, Building 31, Room 8A28, as follows:

Program/Office	Date	Hour
IRP	5/18	9:00 - 11:00
OD	5/19	1:30 - 3:30
NDP	6/7	9:00 - 11:00
CDP	6/8	9:00 - 11:00
FNP	6/10	1:30 - 3:30
EAP 1/	6/11	1:30 - 3:30
STP	6/14	1:30 - 3:30
OBFS	6/17	1:30 - 3:30

1/ Includes NINCDS training initiatives

In conclusion, I want to emphasize the importance I attach to this planning process. Its successful completion will enable each of us to carry out the Institute's programs more effectively next year.

Murray Goldstein, D.O., M.P.H.

Attachments

cc:
Dr. Bick
Mr. Sherbert

Contracts Summary

Program - _____

Priority A - Commitments from FY 1982 and prior awards of incrementally funded contracts:

No. and Title	FY 1982 Award	Estimate FY 1983	Estimate FY 1984	Estimate FY 1985
Subtotal				

Priority B - Renewals with TMR and new high priority in FY 1983:

	Estimate FY 1983	Estimate FY 1984	Estimate FY 1985
No. and Title for renewals			
Project Title for new			
Subtotal			

Priority C - Other projects for FY 1983 which would be funded if funds are available:

Project Title	Estimate FY 1983	Estimate FY 1984	Estimate FY 1985
Subtotal			

TOTAL

Projects planned to begin in FY 1984:

Title and Description	Estimate FY 1984	Estimate FY 1985	Estimate FY 1986
(Indicate termination year if beyond FY 1986)			

Contract Projects

Program - _____

Contract Title: _____

Contract Number (if applicable): _____

Contractor/PI (if applicable): _____

Priority: _____ (A, B or C)

Total Committed Funds for the Project
through FY 1982 (if applicable): $_____

Estimated Cost:

FY 1983
FY 1984
FY 1985
FY 1986
FY 1987

Justification (priorities B and C only): (Include rationale for the project, statement of objectives, and accomplishments if an ongoing project.)

Reason for selection of contract mechanism (priorities B and C only):

Project completion date for an ongoing contract or proposed renewal with TMR:

Grant Initiatives for FY 1983

Program - _____

Title: _____

Mechanism: _____ (RFA, Program Announcement, or Request for Cooperative Agreement)

Priority 1/ (RFA and RFCA only): _____ (1,2 or 3)

Estimated Cost (for RFA and RFCA only):

FY 1983
FY 1984
FY 1985
FY 1986
FY 1987

Justification: (Show the basis for the initiative and describe how it relates to program objectives and identified needs. If this is an RFA, provide the rationale for an RFA rather than a Program Announcement. In the case of a cooperative agreement, documentation of the nature and degree of substantive program involvement must be included.)

1/ Priority 1 - absolutely needed as essential for acquisition of research leads for further program development

Priority 2 - highly desirable and urgently needed if monies available

Priority 3 - to be funded if monies available after priority 2 is observed

Type II Large Grants - FY 1983 and FY 1984 Start Dates
($\geq$ $150K Direct Costs)

Program - _____

Grant No.	Title	Institution/PI	Current Award Expires	Estimated Renewal Requested Amount	Date of Council Review	Start Date

A. (Complete for grants with FY 1983 Start Dates)

B. (Complete for grants with FY 1984 Start Dates)

Other Objects

Program - _____

	FY 80 Actual	FY 81 Actual	FY 82 Estimate	FY 83 Request
A. Controlled Procurements				
2321 ADP Equipment Rental				
2331 Rental of Photocopiers				
2343 Miscellaneous Rentals				
238 Communications				
24 Printing				
25 Contractual Services				
26 Supplies				
31 Equipment				
32 Lands and Structures				
Subtotal Controlled				
B. Non-Controlled Object Classes				
21 Travel				
22 Transportation				
23 Balance of OC 23				
Subtotal Non-Controlled				
Total Other Objects				

Narrative Justification: (Provide basis for increased request for each Object Class. For each expenditure of $5,000 or more ($25,000 for IRP) for equipment or contractual services, provide individual justification. Provide individual justification for each conference or meeting and each interagency agreement to be funded from other objects, regardless of the amount.)

A. Basis for Increased Requests

B. Conferences, Workshops

C. Interagency Agreements

D. Individual expenditures of $5,000 or more ($25,000 for IRP) for equipment or contractual services

Training Initiatives

Format Under Development

SUMMARY FACTUAL
DESCRIPTION OF THE
PLANNING PROCESSES OF THE
DIVISION OF COMPUTER RESEARCH AND TECHNOLOGY

"STUDY OF THE PLANNING PROCESSES AT NIH"

NIH Contract Number 1-OD-2-2122

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1. THE DIVISION OF COMPUTER RESEARCH AND TECHNOLOGY: ITS MISSION AND ORGANIZATION

The Division of Computer Research and Technology is one of six research and support Divisions which, combined with four Bureaus and eight Institutes make up the National Institutes of Health (NIH). The Division was established in 1964, under the administrative authority of the Director, NIH in response to recommendations outlined in a 1963 report on "Computation and Data Processing at the NIH."

A. MISSION

The DCRT's mission states that the Division plans and conducts an integrated computer research service program in support of the NIH mission. In fulfilling this responsibility, the Division: (1) provides professional programming and computational and automatic data proccessing capability to meet NIH program needs; (2) conducts theoretical and applied research in mathematical statistics, mathematics, and other (physical and life) sciences; (3) provides resources for research, development, and consultation for the design and implementation of project-supporting computer systems; (4) provides scientific and administrative direction in the formulation of automatic data processing activities; (5) participates in the analysis of requirements, design, and development of automatic data processing systems to make effective use of advanced techniques and equipment; (6) serves as a Federal data processing center for biomedial and statistical computing by providing services to other Federal agencies (as capacity is available).

B. PROGRAMS

The DCRT was not established to be a service organization with some added research activities; rather, the DCRT program is an integrated set of many activities, ranging from research studies in fundamental science to the provision of a broad range of computing facilities and services thorughout the NIH. Specifically --

- As a scientific and technical resource, the DCRT:

  - consults in mathematics, statistics, engineering, and computer science and technology;
  - collaborates with NIH scientists on research and development projects;
  - designs, develops and installs small computer systems for specialized laboratory and clinical applications; and
  - carries out independent research and development projects.

- To provide the services in support of NIH activities, the DCRT:

  - operates a computer center for NIH scientific and administrative needs;
  - provides users with computer manuals, training, and seminars;
  - performs systems analysis, design, and programming for NIH;
  - coordinates automatic data processing policy and reporting for NIH;
  - maintains a library of books, reports, and journals of topics related to its work; and
  - conducts a public information program.

The growing importance of computer technology in biomedical research has contributed to the development of a research-oriented program structure in the DCRT (represented by four laboratories and two branches) designed to accommodate the general types of computer enhancements and innovations being investigated, developed, and provided.

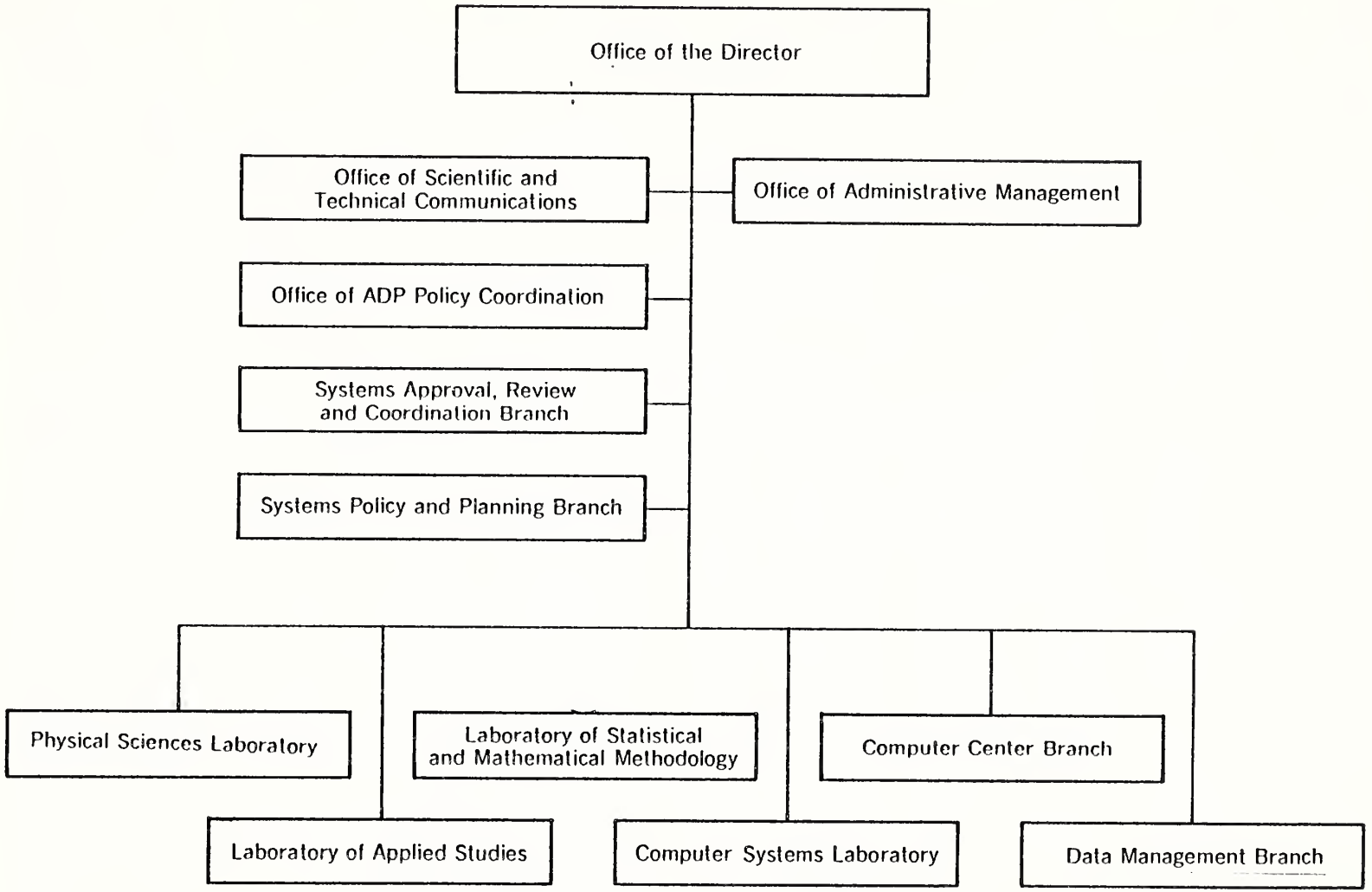
C. ORGANIZATION

The organization of the DCRT is illustrated in Exhibit 1 and summarized below.

- The Computer Systems Laboratory (CSL)

  The CSL is the major source of expertise at NIH for minicomputer and microcomputer technology. CSL engineers and scientists, in collaboration with NIH intramural laboratory and clinical investigators, apply this technology in the areas of laboratory automation and patient care. Some projects are occasionally undertaken with NIH extramural program staff and with other Federal agencies. CSL's multidisciplinary approach aids both the recognition of problem areas that will benefit from automation and the interpretation of research needs in terms of computer methods.

Exhibit DCRT-1
Organization of the DCRT


Office of the Director
Office of Scientific and Technical Communications
Office of Administrative Management
Office of ADP Policy Coordination
Systems Approval, Review and Coordination Branch
Systems Policy and Planning Branch
Physical Sciences Laboratory
Laboratory of Statistical and Mathematical Methodology
Computer Center Branch
Laboratory of Applied Studies
Computer Systems Laboratory
Data Management Branch

- The Laboratory of Applied Studies (LAS)

  The LAS has three main purposes:

  1. In collaboration with biomedical scientists, to apply mathematical theory and computing science to the construction, testing, and improvement of mathematical models of physiological processes;

  2. In collaboration with clinicians, to develop and apply mathematical or statistical theory and special purpose computing procedures to facilitate research projects aimed at improving the diagnosis of disease and the assessment of treatment;

  3. To engage in independent research (in applied mathematics, statistics, and computer systems) necessary to provide a sound theoretical basis for collaborative studies, and to insure that state-of-the-art mathematical and computational method are available as research tools at NIH. Two sections carry out these primary LAS functions.

- The Physical Sciences Laboratory (PSL)

  The staff of the PSL carry out research in support of NIH programs and in pursuit of its members' interests in the areas of physics, physical chemistry, applied mathematics, and applied computer technology. It has an active research program in its areas of expertise and provides consulting services to other scientists in theoretical physics, chemistry, and applied mathematics. Members of the PSL develop theory and often develop instrumentation for biomedical experiments.

- The Laboratory of Statistical and Mathematical Methodology (LSM)

  The LSM combines research in mathematical statistics, mathematics, computer, and information science with collaboration and service in these areas to NIH researchers and administrators. LSM staff interact with all NIH Institutes, with other Federal agencies outside DHHS, and with biomedical researchers worldwide.

- The Data Management Branch (DMB)

  The DMB provides advice and assistance to research investigators, program officials, and administrators throughout NIH in planning for and obtaining computer data proccessing services. In this role the branch is a central NIH resource for systems analysis, design, and programming. There are currenty 47 permanent full time employees whose disciplines include computer science, mathematics, and statistics.

  DMB staff design and create computer-based data management systems that provide practical solutions to the unique mix of administrative, scientific, and management data proccessing problems encountered at the NIH. Each new computer system user is provided comprehensive training in all system facilities and functions of the system provided by DMB. In addition, DMB staff teach courses about programming tools; provide advice on data management techniques to NIH programmers; serve as con-

sultants to the BID's for obtaining and monitoring contracting services for computer systems development; and create and maintain general purpose, user-oriented programming tools to speed building and improve operation of applications systems.

- The Office of the Director (OD)

  The Office of the Director, DCRT comprises five separate units:

  1) The Office of ADP Policy Coordination, under the direction of the Assistant Director of the Division, has four closely related functions:

     i) It serves as a focus for NIH-wide coordination of Automated Data Processing (ADP) policy matters;

     ii) It serves as a central NIH point of contact with the Public Health Service, the Department of Health and Human Services, other HHS Agencies, and the General Services Administration on policy and regulatory questions;

     iii) It provides the point of contact for those NIH procurement and contracting matters that must be cleared by the DCRT prior to procurement or contracting action; and

     iv) It also provides advice and assistance to NIH staff and other concerning the internal operations of DCRT in matters of ADP policy and procurement.

  2) The Office of Administrative Management, under the direction of the Executive Officer, consists of 15 people, organized functionally into three sections: finance, personnel, and general administration. The office serves as liaison between these functions and the NIH Office of Research Services and with other NIH, PHS, and DHHS offices. It handles a broad range of administrative managerial functions for an NIH research division of almost 300 people. Specifically, the following administrative management functions were identified as being the responsibility of the DCRT's Office of Administrative Management.

     - Planning
     - Budgeting
     - Legislation
     - Contracts Management
     - Procurement Management
     - Financial Management
     - Personnel Management
     - Program Analysis

  3) The DCRT Office of Scientific and Technical Communications (OSTC), under the direction of the Associate Director, DCRT, includes:

i) The DCRT Library, which maintains a collection of materials for use by DCRT and NIH staff and serves as a resource for other libraries;

ii) The DCRT Information Office, which serves as the focus for providing the NIH community and the professional and lay public with information about DCRT's activities and related applications of computing in biomedical research;

iii) Scientific work in related areas of pattern recognition, multidimensional information processing, and applications to medical decision making.

4) The Systems Approval Review, and Coordination Branch, and

5) The Systems Policy and Planning Branch were transferred from DMP, OA to the DCRT as of January 1, 1983. These two branches of the OD, DCRT are responsible for coordination, policy, and planning of systems and their applications.

The DCRT's research-oriented programs are supported by the NIH Management Fund, while the NIH Service and Supply Fund (SSF) is used on a fee-for service basis to support most of the DCRT's service-oriented programs. The DCRT does not have a grant program. It does, however, provide occasional contractual support for meetings on scientific topics related to its work. Thus, the DCRT's primary implementation strategy for its research and development efforts is "intramural" in nature, with a strong emphasis on collaborative projects that link DCRT staff with professionals from the other BIDs and/or the outside biomedical research and computer technology communities.

2. THE ROLE OF PLANNING AND THE PLANNING OFFICE

A. THE ROLE OF PLANNING

The primary role of planning in the DCRT is to assist management in identifying, assessing, and meeting the computer-related needs of the user community and to sustain and improve the quality of research and development activities carried out by the DCRT.

Planning and budget activities at the DCRT are parallel processes in an operational or "timing" sense during the preliminary stages of the annual budget justification. During the actual budget year, however, there is little or no relationship between planning and budgeting. Similarly, planning at the DCRT has little relationship to other processes, such as program analysis, evaluation, and/or legislation.

Many outside factors influence this, e.g., OD/NIH, Congress, and technological changes on a daily basis. Therefore, activities such as budget planning, that are long-range in nature, are subject to change.

Planning plays a more significant role in determining program objectives. Planning is undertaken on a project-by-project basis within the context of a program structure that combines projects on the basis of their scientific/technical orientation. The projects planned for implementation (or continuation) in the coming year are clearly set forth and published in Volume II of the DCRT Annual Report.

B. KEY ACTORS

Planning at the DCRT is conducted primarily by the designated planning officer. (This position is discussed in Section 3 of this report).

The Advisory Committee on Computer Usage (ACCU) does have a role, albeit limited, in DCRT planning. This Committee, which is made up of one member from each NIH BID that has an intramural scientific program, provides advice to DCRT regarding:

- Usage, operation, financing, and procurement of all computer systems that are either at the NIH or are used by the NIH and that have an extensive intramural user base or have a major impact on intramural resources across BIDs,
- Short- and long-term planning of computer systems at the NIH,
- Suggestions and complaints received from users, and
- Related matters arising from requests made by the Deputy Director for Science, NIH, the Director, DCRT, and other NIH officials and staff, or generated by the Committee Members.

Appendix 1 provides the ACCU Charter.

3. THE DCRT PLANNING OFFICE

The DCRT does not have a distinct organizational unit designated as its planning office. The designated Planning Officer for the Division is the Executive Officer, who also serves as the senior administrative management official to the Director and Deputy Director, DCRT.

The primary planning-related function of the Division's designated Planning Officer is the preparation of the Annual Research Plan, which is prepared on the basis of the data/information collected during the Annual Program Review and subsequently used in the DCRT Annual Report. In addition, the Planning Officer assists the Director in determinations pertaining to resource allocations among the various Laboratories, Branches, and Offices.

4. DESCRIPTION OF SPECIFIC PLANNING PROCESSES

A. INTRODUCTION

There are three types of planning undertaken by the DCRT:

- Program Planning, which is undertaken on a continuing basis by the respective Laboratories, Branch, and/or Office Manager, and collated annually into a format adaptable for use in the DCRT Annual Program Review with the Director and the DCRT Annual Report. Other than the Annual Report, there are no specificc requirements for a separate document called a "Program Plan."

- Research Planning, which is undertaken annually in response to specific requirements set forth by OD/NIH. The DCRT Annual Research Plan is taken directly from the Program Planning results.

- ADP Planning, which is undertaken annually in direct response to requirements set forth by PHS. The DCRT's Office of ADP Policy Coordination prepares the ADP Plan submission for all of NIH.

The following documents represent the primary planning-related products developed by DCRT:

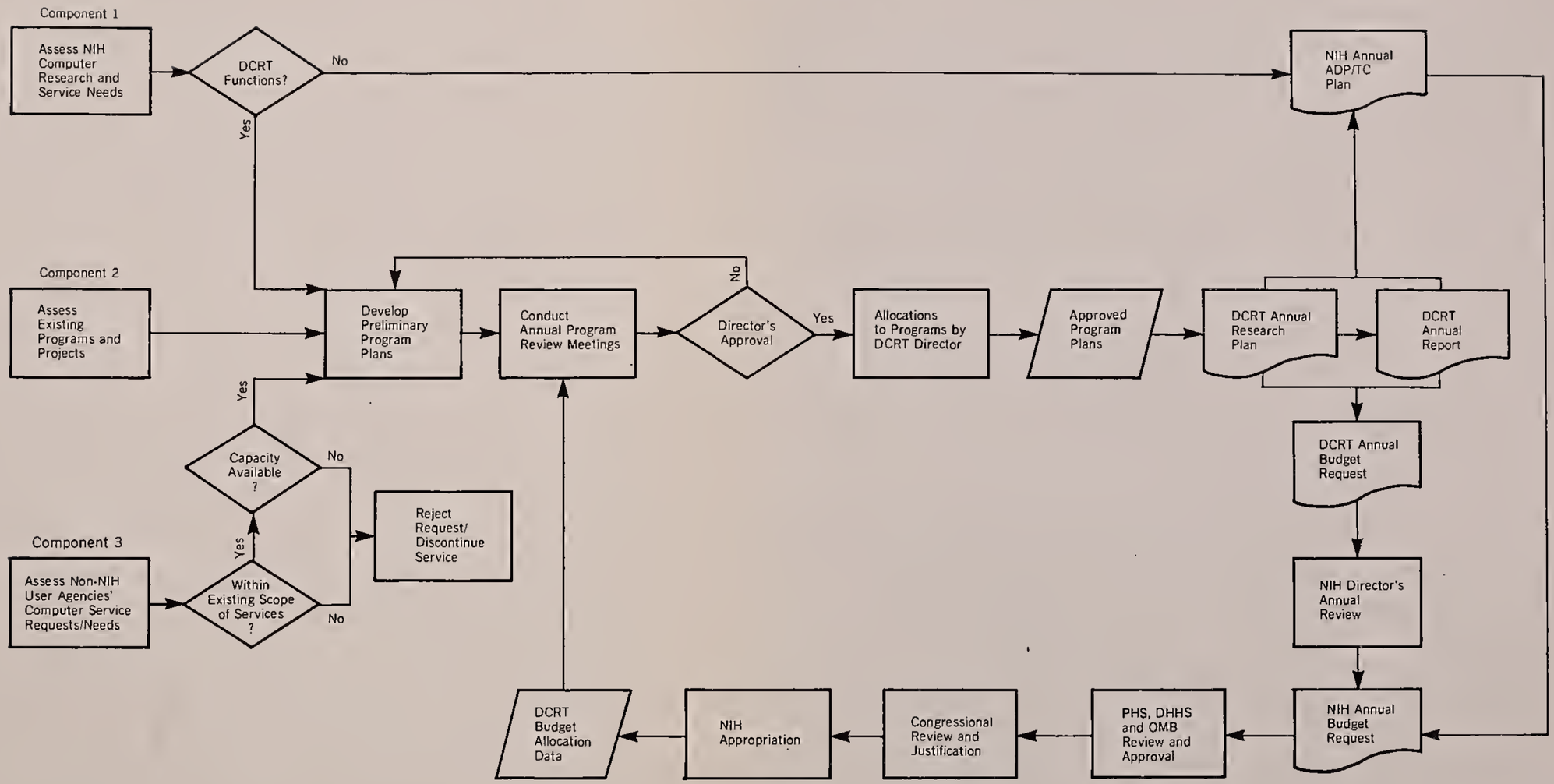
- The DCRT Annual Research Plan
- The DCRT Annual Report
- The NIH Annual ADP Plan

These three planning products result from six underlying processes:

- Needs Assessment Process,
- Project and Program Planning Process,
- Resource Allocation Process
- Budget Planning
- Annual Research Plan Development Process
- Annual ADP Plan Development Process

The interrelated and cyclical nature of these processes is graphically represented in Exhibit 2 on the following page. The model presented by this representation reveals the following features of the overall DCRT strategy:

Exhibit DCRT-2
DCRT Planning and Budgeting Strategy



- All of the types of planning previously identified (program, research, and ADP) are directly related to each other. All three types of planning are, at least in part, considered during the needs assessment, resource allocation, and budget request and appropriations processes.

- The program planning activity which results in the Annual Research Plan is the underlying planning activity within the DCRT.

- The DCRT Annual Report is actually a planning-related document which contains both short- and long-range goals. The short- and long-range plans provide foundation information for the development of the Budget Request, the Annual Research Plan, and the Annual ADP Plan.

- The program planning activity conducted in any particular fiscal year is intended to infuence and "drive" the budget request and appropriations activities, which are designed to secure resources for the next fiscal year. The results of the appropriation activity are then fed back into the program planning activity of the next fiscal year.

B. THE NEEDS ASSESSMENT PROCESS

The DCRT Needs Assessment Process is comprehensive but informal. Exhibit 3 illustrates the variety of mechanisms employed to complete these three types of assessments:

- NIH Computer Research and Service Needs Assessment,
- Assessment of Existing Computer Research and Service Programs and Projects, and
- Non-NIH Computer Service Needs Assessments

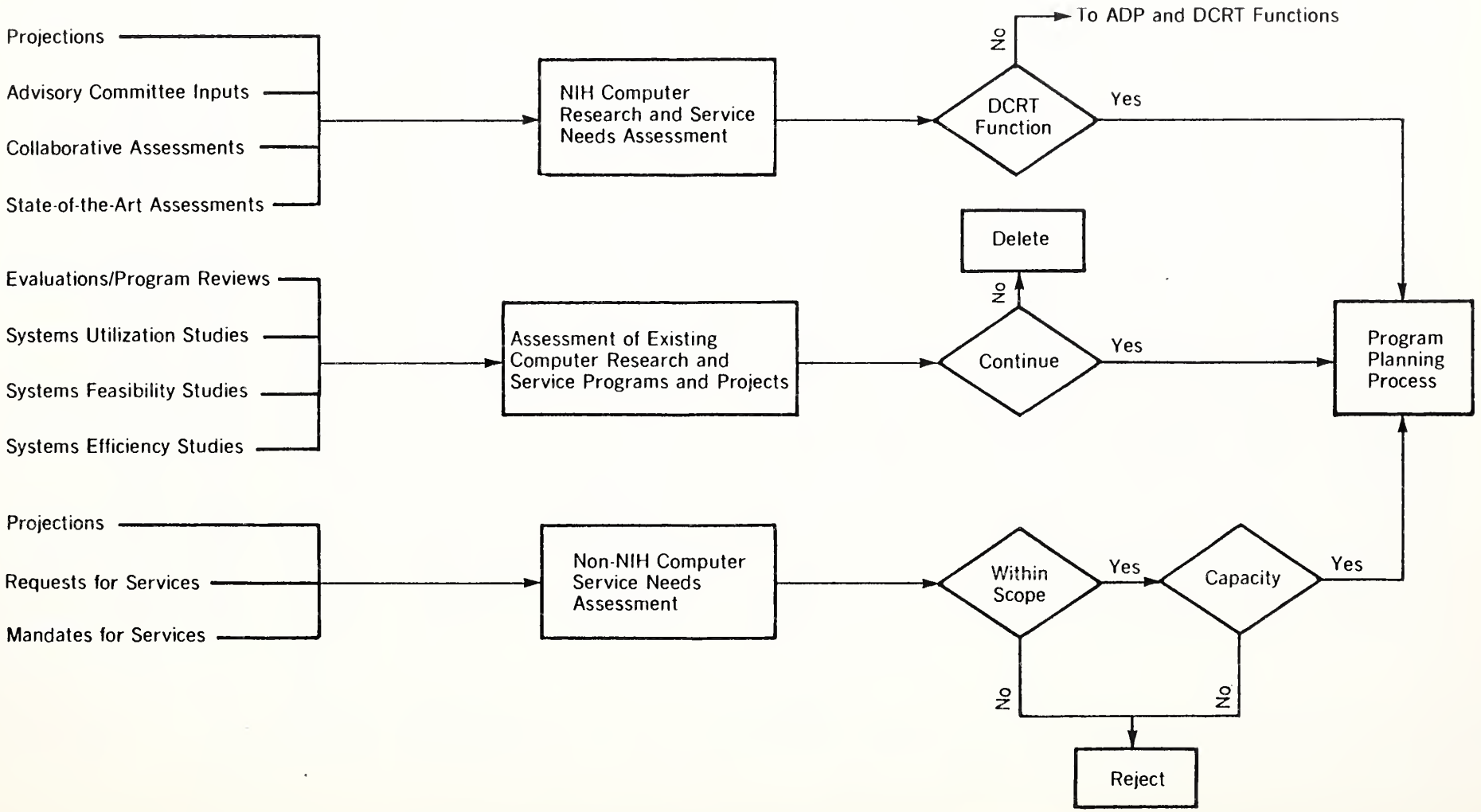
There is no formal or written requirement for developing the needs assessments; and each Laboratory, Branch, and Office Manager is free to select from among the alternative mechanisms available to him/her.

The NIH Computer Research and Service Needs Assessment is the product of four different assessment mechanisms:

- Projections Based on Current Usage -- these typically cover a two-year period for expected differences using a curve-fitting technique.

- NIH Advisory Committee on Computer Usage Inputs -- though this mechanism exists, it has little influence on planning.

Exhibit DCRT-3
DCRT Needs Assessment Process



- DCRT/Other BID Collaborative Assessments of Needs -- this appears to be the most important assessment mechanism. It works in two very different ways:

  1) Informal meetings between DCRT officials and officials of the other BIDs keep the officials of the DCRT informed on existing and potential needs.

  2) Scientific officials of the other BIDs also make formal requests for assistance and/or services. Appendix 2 is an example of such a request and the DCRT assessment it fostered.

- State-of-the-Art Assessments through Studies, Workshops, and Meetings are other important sources of assessment information, which allow DCRT officials to recognize technological advances and determine possible applications to biomedical research.

The Assessment of Existing Computer Research and Service Programs and Projects is carried out at the Laboratory, Branch, and/or Office level, with review by the Director and staff taking place during the Program Planning Process. At least four different mechanisms are used to produce this type of assessment:

- Evaluation/Program Reviews -- these are usually quasi-formal in nature, and directed at an overall determination of the extent to which existing needs are being met. The DCRT does not participate in the 1% set-aside evaluation fund; therefore the Annual Evaluation Plan is not submitted.

- Systems Utilization Studies -- these are regularly conducted to determine the extent to which existing systems are used.

- Systems Efficiency Studies -- these studies of the existing systems are used to determine the feasibility of expanded or altered usage.

- Systems Efficiency Studies -- these are also conducted on a regular basis to establish current levels of efficiency and to determine the means through which efficiency can be improved.

Non-NIH Computer Service Needs Assessment is the product of three different mechanisms:

- Projections Based on Current Use.

- Requests for Services -- these are typically received from the requesting agency via a prescribed form (see Appendix 3), though it is clear that "informal" discussions usually take place before the form is filed.

- Mandates for Services -- these typically come from NIH, PHS, or DHHS (see Appendix 4).

Exhibit 3 also reveals that decisions are typically made at the Laboratory, Branch, and/or Office level. These decisions are based on the Needs Assessment, as follows:

- NIH Computer Research and Service Needs that have been identified during the assessment are reviewed to determine whether or not they are DCRT functions. Those needs that are DCRT functions are fed into the Program Planning Process.

- The Assessment of Existing Computer Research and Service Programs and Projects involves determinations pertaining to the need for continuation or modification of existing services. Those services that should be continued or modified are fed into the Program Planning Process, while those which are no longer needed are deleted.

- The Non-NIH Computer Service Needs identified during the assessment go through two different determinations. First, it is determined whether or not they are not within the scope of the existing DCRT services. If they are, they go to the next level of determiantion. If they are not, they are rejected. Subsequently, those needs that are within the scope of existing DCRT services are reviewed to determine whether or not the DCRT has sufficient capacity to handle the service without disrupting their NIH services. If existing capacity is available, the need is fed into th Program Planning Process. If existing capacity is not available, it is rejected or the service to the non-NIH user is discontinued.

C. PROJECT AND PROGRAM PLANNING

The project and program planning activities provide the foundation for other DCRT planning processes. Because this type of planning is the responsibility of each Branch and/or Laboratory Manager, there is no single specified process. However, Component 2 of Exhibit 2 illustrates the general process and its relationship to overall DCRT planning.

There is a direct and immediate relationship between the final step in the DCRT Annual Research Planning Process (i.e., the DCRT Director's Budget Allocations to the Branches and Laboratories) and the Program Planning undertaken by these subordinate managers. Planning is for the implementation of the program plans included in the Annual Research Plan, as per the Director's Final Budget Allocations.

There is no requirement for the production of a Program Plan for each Branch or Laboratory. However, it is clear that reporting requirements do exist and are exercised during the DCRT Annual Review Meetings. During these meetings the Branch and Laboratory Managers provide the DCRT Director with information pertaining to their existing programs and projects, and their accomplishments during the previous year. This latter information is the foundation material for the development of the DCRT Research Plan and, subsequently, the DCRT Annual Report.

The steps involved in this process may be summarized as follows:

- Step 1: Preliminary Program Plans Developed. Laboratory and Branch Chiefs meet with their program staff to begin preparation for the Annual Program Review. Program staff are asked to report on (1) program background and objectives; (2) significance of program to biomedical research; (3) program progress during reporting fiscal year; and (4) proposed course for future years.

- Step 2: Review of Preliminary Program Plans. Each plan is then reviewed by the Laboratory/Branch Chief who may make changes based on their knowledge of the research and user communities.

- Step 3: Presentation of Program Plans. The Laboratories and Branches then present their plans to the small staff meeting. Any final modifications/revisions are suggested at this meeting.

- Step 4: Submission of Program Plans. The final program plans are then submitted to the Information Office for final preparation.

The information gathered for these processes is then used for developing the Annual Budget Justification, the Annual Research Plan, and the Annual Report.

D. BUDGET PLANNING (RESOURCE ALLOCATION) PROCESS

Resource allocation is a key process within the program planning activity. It begins with the receipt of information pertaining to the overall DCRT budget allocation for the ocming fiscal year and ends when the Director makes allocations to each of the Branches, Laboratories, and Offices.

There are only two major steps involved in this process.

- o Step 1: Budget Estimates Submitted. At the beginning of the fiscal year, each laboratory and branch is requested to submit their budget estimate to OD, DCRT.
- o Step 2: Allocation of Resources. When the OD, NIH determines the DCRT budget levels, the Director, Deputy Director, and Executive Officer determine budgets for each laboratory and branch. These determinations are based on their knowledge of program plans for the coming year. Specific projects may be approved or disapproved based on the DCRT Director's priorities for NIH.

E. ANNUAL RESEARCH PLAN

The development of the Annual Research Plan is handled centrally in the Office of the Director, DCRT with little input from the Laboratory and Branch Chiefs.

- o Step 1: Guidance for Development of Annual Research Plan Received and Reviewed. This guidance is generally reviewed by the Director, Deputy Director, and Executive Officer during their weekly "small staff" meeting. These meetings are informal and used to discuss issues, problems, and future plans.
- o Step 2: Annual Research Plan Drafted. The Executive Officer drafts the Annual Research Plan using the program plans submitted during the Annual Program Review.
- o Step 3: Review of Draft Plan. The draft plan is then reviewed and revised during the weekly small staff meeting.
- o Step 4: Annual Research Plan Finalized. The Executive Officer then finalizes the Annual Research Plan. There is very little or no input from the Laboratory and/or Branch Chiefs.
- o Step 5: Annual Research Plan Submitted to OD, NIH.

F. ANNUAL ADP PLAN

The Automatic Data Processing (ADP) Plan serves as an appendix to the NIH preliminary budget and provides automatic data processing and telecommunications funding levels for each BID. The preparation of Annual ADP Plan for NIH, which is submitted to the PHS, is coordinated by the DCRT. The DCRT's ADP Coordinator acts as the central point for the following:

1. Preparation and Forwarding of Guidance Materials,
2. Provision of Technical Assistance to the BIDs,
3. Receipt, Review, and Acceptance of the BID Submissions,
4. Collation, Compilation, and Verification, and
5. Publication and Submission

The ADP Planning Process is supported by the collection and compilation of planning information developed by the ADP Plan Coordinator at each BID as part of their own planning processes. This permits the development of the required document with minimal direct intervention and/or management by senior level NIH officials.

A distinctive characteristic of the ADP Planning Process is found in its one-way flow of planning-related information from the BIDs to the DCRT's ADP/MIS Coordinator.

The steps in this process are:

- Step 1: Receipt of Guidance. The DCRT ADP Officer receives guidance from the Office of the Secretary, PHS.
- Step 2: Distribution of Guidance. The DCRT ADP Coordinator then distributes the guidance and response forms to a network of BID ADP Coordinators.
- Step 3: Finalization of ADP Plan. The DCRT ADP Coordinator then consolidates the BID responses into a total NIH response.
- Step 4: Submission of ADP Plan to PHS.

This process is structured by the PHS and allows the NIH very little discretion to make changes.

5. OUTCOMES OF AND BARRIERS TO PLANNING

Due to the rapidly changing state-of-the-science, planning for computer related needs is more influenced by outside forces than other types of planning. If the Director, DCRT gives a new program a high priority rating or if technology changes, resources (both people and dollars) may be realigned to support a program.

Nevertheless, the needs assessments and program and project planning processes do influence program content and resource allocation. For example, long-range (2-5 years) programs or projects determined to have an NIH-wide impact are built into the planning process. Small, individual projects of short duration are not.

There were no true barriers to planning identified by the DCRT planning staff. However, more structured involvement of program staff in planning activities was identified as one change that would facilitate the planning process.

6. SUMMARY, OBSERVATIONS AND THE FUTURE

The combined service and research orientation of the DCRT, as well as the rapidly changing state-of-the-science in computer technology, require that the DCRT engage in planning that is both operationally flexible to meet the needs of the user community and strategic and proactive to identify research opportunities within the field. Thus, the most significant aspect of planning is the role it plays in determining program objectives.

The relatively small size of the Division and small number of persons engaged in planning activities facilitates the ability of the DCRT to plan on a project-by-project basis. In addition, the involvement of the designated planning officer in the administrative management of the DCRT ensures that the necessary data is considered in developing DCRT plans.

7. SOURCES OF INFORMATION

Information was gathered from published documents, internal reports and memoranda, and personal and telephone interviews.

Interviews were conducted with:

Mr. Lee Manuel -- Executive Officer

Documents consulted:

Forbush, WJ, "Fiscal Year (FY) 84 Automatic Data Processing and Telecommunications (TC) Budget Submission," March 31, 1982 Memorandum, Office of the Assistant Secretary for Health Operations, U.S. Public Health Service, Washington, DC, page 1.

"Functional Statement," Division of Computer Research and Technology, as provided by DCRT's Planning Officer on August 8, 1982, Division of Computer Research Technology, NIH, Bethesda, MD.

Information Office, Division of Computer Research and Technology, NIH DCRT Fiscal Year 1981 Annual Report: Volume I, U.S. Government Printing Office, Washington, DC, page 5.

Manuel, L, written responses to workbook for the Initial Draft Description of the Planning Processes at the DCRT.

Mohler, WC, "Answers to Your Subcommittee's Questions," July 16, 1982 Memorandum, Office of the Acting Director, Division of Computer Research and Technology, NIH, Bethesda, MD, page 1.

Office of Program Planning and Evaluation and Division of Research grants, NIH, NIH Data Book: 1982, U.S. Government Printing Office, Washington, DC, page i.

Williams, RO, et al., Field Notes from August 8, 1982 Interview with DCRT's Planning Officer, ANROW Sciences Division, Mandex, Inc., Rockville, MD, page 1.

APPENDIX 1

CHARTER
OF
ADVISORY COMMITTEE ON COMPUTER USAGE

approved by Dr. Stetten
Approved by Dr. Challenger 10/22/79

June 30, 1978

CHARTER

Advisory Committee on Computer Usage

Authority

Established by the Deputy Director for Science, NIH, through memorandum dated November 9, 1977.

Structure

The Committee consists of one member from each BID at the NIH that has an intramural scientific program. Members are appointed by the Deputy Director for Science, NIH, for overlapping terms not to exceed three years. Members may not serve more than two terms. The Chairman is appointed by the Deputy Director for Science, NIH, from among the members for a term not to exceed three years. An Executive Secretary is also appointed by the Deputy Director for Science, NIH.

Function

The Committee provides advice to the Deputy Director for Science, NIH, and the Director, DCRT, regarding:

1. Usage, operation, financing, and procurement of all computer systems at the NIH or used by the NIH that have an extensive intramural user base or have a major impact on intramural resources across BIDs.

2. Short- and long-term planning of computer systems at the NIH.

3. Suggestions and complaints received from users.

4. Related matters arising from requests made by the Deputy Director for Science, NIH, the Director, DCRT, and other NIH officials and staff, or generated by the Committee members.

Meetings

Meetings shall be scheduled at a regular time each month, but may be cancelled or special meetings may be called by the Chairman. The agenda for each meeting shall be determined by the Chairman. With the approval of their Scientific Directors, members may select an Alternate to attend in their absence. Alternates may also attend with ~~the~~ members. Minutes of the meetings shall be kept by the Executive Secretary.

APPENDIX 2

EXAMPLE OF REQUEST FOR DCRT ASSISTANCE

MEMORANDUM

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
NATIONAL INSTITUTES OF HEALTH

TO : Director, DCRT
for Director, NIDR
Director of Intramural Research, NIDR

DATE: March 28, 1975

FROM : Chief, LB, NIDR

SUBJECT: Computer Graphic Display of Macromolecular Structures

We have started with Mr. Richard Feldmann in DCRT a program to utilize present graphic facilities to display collagen structures. This method will initially serve educational purposes and will bring our ability to examine collagen molecular structure to the state that is now routine for other proteins. The next step will be to utilize the method as a research tool to examine interactions between collagen molecules. This has been done so far using one-dimensional simplifications. Our initial success indicates that a three-dimensional study will be very fruitful in understanding collagen fibril structure and formation. Our interest in the computer graphic approach is great enough that beginning in June 1975, a Staff Fellow (Dr. Benes Trus) trained in both protein structure and computer techniques will be working essentially full time on the project.

The problem of molecular packing of large molecules such as collagen requires a somewhat different approach than displaying of structure as atomic coordinates. Surfaces in three dimensions, the equivalent of space filling models, need to be examined in an interactive system. As the equipment and techniques to do this become available, it is critical that NIH have them to be utilized in the kind of problem described here.

On a longer range, we are considering even more complex problems of structure at higher levels such as collagen-proteoglucan interactions that determine connective tissue morphology. As more and more information becomes available, it is clear that it can be correlated and interpreted only by interactive computer graphic methods. The problem is therefore a continuing and expanding one and applies to all biological structures as well as connective tissue. It is important, therefore, that NIH as a minimum keep abreast of the state-of-the-art.

Karl A. Piez

MEMORANDUM

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
NATIONAL INSTITUTES OF HEALTH

TO : Dr. Arnold W. Pratt, Director
Division of Computer Research
and Technology
Bldg. 12A, Room 3033

DATE: April 8, 1975

FROM : Dr. Alan N. Schechter
Chief, Section on Macromolecular
Biology, LCB, NIAMDD

A.N. Schechter

SUBJECT: Updating of Computer Graphics Facility

This laboratory (which is under the directorship of C.B. Anfinsen) is engaged in the study of several proteins whose X-ray structure is known — bovine pancreatic ribonuclease, staphylococcal nuclease, human hemoglobin A — by a variety of techniques, such as peptide synthesis, immunochemistry, enzymology, NMR, fluorescence spectroscopy, etc. During the last six or seven years, many members of the Laboratory of Chemical Biology have made extensive use of the Computer Graphics Facility in their studies of protein structure — function relations.

The library of protein structures on computer which has been built up by Richard Feldmann has been of invaluable assistance. We have examined the X-ray structures in planning experiments and analyzing their results. We have made diagrams and photographs from the display for illustrating points of structure and function for diagrams in publications (several reprints of which are attached) and in seminars and lectures. In addition several movies have been produced — e.g., on the structure of nuclease, the structure of ribonuclease, the structure of calcium binding proteins, the use of NMR in determining protein structure, etc. — which have been extremely useful in illustrating experimental results and interpretations.

Of equal or greater importance, the Computer Graphics Facility has been of primary experimental use in interpreting NMR results in terms of distances in proteins, in minimizing energies in the prediction of protein structures, etc. We expect these uses to expand in the future.

2.

In general, I wish to comment that Richard Feldmann has done a superb job in this work. He has been of great direct help to many of us in these projects. In addition he has obtained an international reputation and people journey from all over to work with the equipment. His Microfiche Atlas of Protein Structure also seems likely to become a major tool of research and teaching.

On the basis of all the above, I believe strongly that it would be appropriate for the NIH to invest in the Evans and Sutherland equipment for 4 X 4 matrix multiplication to update or replace the Adage machinery. This will allow computations for rotations, etc. to be done much more quickly, allow scale changes, display surfaces, and have other improvements necessary and commensurate with the importance of this facility.

MEMORANDUM

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
NATIONAL INSTITUTES OF HEALTH

TO : Director, DCRT
Through: Director of Intramural Research, NIDR

DATE: May 11, 1977

FROM : Chief, LB, NIDR

SUBJECT: Densitometer for Digitizing Negatives, Central Facility.

We have a need for a high quality instrument to digitize electron micrograph plates prior to image processing. However, we cannot justify its purchase owing to the high cost and the limited use that any one user would have for it. This would seem to be a suitable instrument for central location and use. Dr. Benes Trus of this Laboratory has discussed it with Mr. Richard Feldmann who suggests that DCRT and one or more other Institutes might be interested and could share the cost.

The instrument we have in mind can digitize virtually any negative at very high resolution and can perform several kinds of data manipulation. The cost is $70,000-80,000. It requires a small computer such as a PDP 11. Location in and supervision by DCRT would be appropriate.

Can this be considered?

Karl A. Piez

copies: Dr. Benes Trus
Mr. Richard Feldmann

Lipkin & Herman

MEMORANDUM

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
NATIONAL INSTITUTES OF HEALTH

: Assistant Director Finance, DFM

DATE: June 24, 1977

M : Executive Officer, DCRT

JECT: Central Digitizing Facility

NIDR has requested that DCRT provide a facility to digitize electron micrograph plates prior to computer image processing. The actual digitizing would be done by each research investigator and the data then processed on other DCRT equipment. NIDR will provide the appropriate scientific supervision of this instrument and we will house it in our space. The proposal was presented to the NIH Scientific Directors at their meetings of May 25 and June 1 and they have indicated their support for this facility.

This facility would require the purchase of a densitometer with a small attached computer with cost being in the ~~$70,000 - $80,000~~ range. (#103,000) Final decisions have not been made for the cost recovery of this facility but, several options are being considered at this time. Based on the attached budget list, DCRT has adequate funds within our S&SF equipment allocation for F.Y. 1977 and it is our understanding from a DFM memo of January 17 that equipment substitutions may be made as long as they remain within the total allocation.

The necessary documents to acquire the equipment are being prepared by NIDR and will be processed to meet the July 1st procurement deadline.

L. Lee Manuel

cc: Dr. Pratt
M. Reed

Attachment

MEMORANDUM

DEPARTMENT OF HEALTH, EDUCATION, AND WELFA
PUBLIC HEALTH SERVICE
NATIONAL INSTITUTES OF HEALTH

TO : Director, DCRT

DATE: August 10, 1978

FROM : D.R.Davies
Chief, Section on Molecular Structure, LMB/NIAMDD

SUBJECT: Requirements for Additional Molecular Graphics Facilities

1. Our requirements for molecular graphics:

Protein crystal structure analysis involves extensive model building - a rather obscure electron density map has to be fitted with a molecular model. Hitherto, we have accomplished this by constructing a mechanical model using a half-silvered mirror to superimpose the model on the map - the so-called Richards Box. This has a number of disadvantages - it is bulky and occupies a lot of space; it is tedious and time-consuming; the final model produced is frequently subject to systematic error. Consequently, the development of computer graphics systems has led to a realization that most of what has been accomplished with mechanical models in the past, can now be more efficiently carried out through the development of molecular graphics programs for model building of proteins and nucleic acids. We have already made significant use of the modeling programs available at the Computer Department of UNC, Chapel Hill, and more recently we have been able, through a collaboration with Dr. Robert Diamond of the MRC, Cambridge, to implement his "BILDER" program on the Evans & Sutherland picture system in DCRT. We anticipate that our requirements for use of this program will be extensive, involving periodic examination of models vis a vis electron density maps, difference maps, etc.

2. Projected heavy use of DCRT system:

At the same time, we expect that there will be increasingly extensive use of the DCRT system through the catalytic influence of Richard Feldmann, for the production of slides, movies, etc., and for the examination of specific proteins and nucleic acids, as well as smaller chemical structures. We anticipate that over the next two years, the level of use of the DCRT picture system, already considerable, will become unbearably heavy.

3. One solution to this problem would be to encourage very heavy users to obtain their own graphics facilities, thus freeing up the time available on the DCRT system for users who wish to make use of its unique color facilities. I would like now to examine this possibility as it relates to the Section on Molecular Structure, LMB/NIAMDD.

4. Current computer facilities in the Section consist of a PDP 11/70 with 128K of memory, one RP04 disc drive, a TU16 tape drive, and three terminals. It is the opinion of the members of the Section that harnessing

an E&S Picture System II to this computer would effectively halt all other computations during the use of the graphics programs. Since for much of the time our 11/70 is continuously in use, we would prefer, if possible, not to tie it up in this way, and would recommend instead replacement of the 11/70 by a more powerful computer.

5. Such a computer could be the new VAX-11/780, which would have the capacity to handle our existing computations together with the operation of the E&S picture system. The VAX has the not insignificant advantage from our point of view, that the existing programs for the 11/70 should be immediately capable of running on the VAX, thus avoiding the necessity of repeating the conversion work of the last two years. Other systems, such as the DEC 20 do not offer this degree of compatibility and of course, this is even more true of other brands of computers.

6. With regard to the choice of graphics systems, we feel that there are compelling reasons for sticking with the Evans & Sutherland system, of which the principal one is compatibility with the DCRT system, enabling our experiences and programs to be immediately available to the NIH computing community. We have also a significant investment in programming for the E&S system that would not be wasted. The protein crystallographers in other laboratories are somewhat split at present, but a number of them are in the process of acquiring this system. Finally, we would have the advantage of a commercial operation with locally available service.

David R. Davies

COST OF ACQUISITION OF E&S PS2+VAX 11/780

Evans & Sutherland Picture System 2	$68,500
Plus 16K 16-bit word memory module	3,000
Plus Data Tablet	4,500
	$76,000
Vax 11/780 DECLAB 11780AA (VL780AA)	$197,242
Minus	
AR11 - not needed	$1,995
LPA11 - not needed	$6,000
RP06 - use existing RP04	$45,980
TE16 - use existing TU16	$19,930
	$73,905
Trade-in on remainder of 11/70 at present in LMB:	$30,000
Total credit (estimate):	$104,000
Total cost:	$169,000

Other Laboratories using or considering purchasing E&S Picture System

Cambridge MRC	Yale
London	LaJolla
Oxford	NIH
Bonosells	Groningen
Heidelberg	San Francisco
Harvard	Eugene, Oregon

APPENDIX 3

EXAMPLE FORMS FOR REQUESTING DCRT SERVICES BY NON-NIH AGENCY

RETURN TO:

Project Control Office, DCRT
Building 12A, Room 3009
National Institutes of Health
Bethesda, Maryland 20205

DCRT OUTSIDE ACCOUNT AUTHORIZATION

INTERAGENCY AGREEMENT

☐ Account Number
☐ Registered Initials
☐ Proj. Init. ☐ Storage Init.
☐ Box Number
☐ Authorization of Other Users
☐ DECsystem-10 Authorization

DCRT Account:

- This form must be completed for one or more of the following: to open a new account; to obtain DECsystem-10 authorization; to authorize additional users on an existing account; to obtain a box number; or to register initials.
- For additional assistance, call 496-6146
- All use will be in accordance with DCRT Standard Operating Procedures as expressed in the User's Guide and other technical publications. Use will be on a time available basis subject to NIH's production requirements.
- This agreement is of the nature of an interagency agreement in accord with the U.S. Code 31-686.

A. Individual Responsible For Account (Sponsor) *(Type or print name of individual responsible for use of services requested and for the action of all authorized users.)*

NAME	AGENCY NAME
TITLE	AGENCY ADDRESS
PHONE	

B. USERS *(Users already valid for this account need not be listed again.)*

NAME		DCRT USE ONLY: REGISTERED INITIALS	
ADDRESS	PHONE	DECsystem-10 #	BOX
NAME		REGISTERED INITIALS	
ADDRESS	PHONE	DECsystem-10 #	BOX
NAME		REGISTERED INITIALS	
ADDRESS	PHONE	DECsystem-10 #	BOX
AME		REGISTERED INITIALS	
ADDRESS	PHONE	DECsystem-10 #	BOX
NAME		REGISTERED INITIALS	
ADDRESS	PHONE	DECsystem 10 #	BOX

C. AUTHORIZATION	SPONSOR'S SIGNATURE	DATE

D. NEW ACCOUNTS ONLY

DESCRIPTION OF SERVICES REQUESTED

PROJECT TITLE

FINANCIAL OFFICER RESPONSIBLE FOR RECEIVING AND PAYING BILLS

NAME	PHONE	ADDRESS
HHS USERS GIVE COMMON ACCT. NO. / AGENCY LOCATION CODE	SERVICES TO BE BILLED ON ☐ SF 1080 or ☐ SF 1081	*Internal Agency Reference (Agreement No., Purchase Order No., etc.)*

E. AUTHORIZATION TO COMMIT FUNDS OF REQUESTING AGENCY

SIGNATURE	TITLE	PHONE

F. DCRT/NIH ACCEPTANCE

SIGNATURE	TITLE	DATE

NIH 1767-3 (Rev. 4/82)

RETURN TO

Project Control Office, DCRT
Building 12A, Room 3009
National Institutes of Health
Bethesda, Maryland 20205

INTERAGENCY AGREEMENT FOR ANNUAL RENEWAL OF DCRT OUTSIDE ACCOUNT AUTHORIZATION

OFFICIAL NAME OF REQUESTING AGENCY AND COMPONENT | DCRT ACCOUNT

PERIOD COVERED BY RENEWAL | FROM | TO

CONDITIONS OF USE

By renewing the existing agreement for DCRT services, requester agrees to the following:

1. All use will be in accordance with DCRT Standard Operating Procedures as expressed in the User's Guide and other technical publications. Use will be on a time available basis subject to NIH's production requirements. Since the sponsor or his designee will submit computer runs directly to DCRT'S computer, the requesting agency assumes responsibility for all charges incurred.

2. This agreement is of the nature of an interagency agreement in accord with the U.S. Code 31-686.

3. If estimated maximum costs, amounts obligated, fiscal year limitations, etc., are required by internal procedures of requesting agency, the requester assumes full responsibility for assuring that these are not exceeded and for reimbursing NIH for services actually used even if any such internal limitations are exceeded. Payment will be made by the requesting agency upon receipt of periodic billings initiated by the Office of Financial Management, NIH, based on actual services used at standard rates of the NIH Service and Supply Fund.

4. When the use requested is to be terminated, requester will so inform DCRT and will initiate steps to: release all tapes, disks, equipment and online storage space being used; request deactivation of the account number and all user initials assigned to it; and notify the Technical Information Office to suspend all mailing of technical literature. *In the event the requester fails to do this, DCRT upon discovering that use has discontinued will do so with the actual costs of doing so charged to the requester.*

FINANCIAL OFFICER RESPONSIBLE FOR RECEIVING AND PAYING BILLS

NAME *(Print or type)* | PHONE

TITLE | APPROPRIATION NO.

ADDRESS

METHOD OF PAYMENT *(If known)* | Services to be billed on ☐ SF-1080 or ☐ SF-1081 | Internal Agency Reference (Agreement No., Purchase Order No., etc.)

AUTHORIZATION TO COMMIT FUNDS OF REQUESTING AGENCY

NAME | SIGNATURE

TYPE OR PRINT | DATE

TITLE | PHONE

ORGANIZATION

DCRT/NIH ACCEPTANCE

NAME | SIGNATURE | DATE

TITLE ~~Assistant Director, DCRT, NIH~~ | PHONE 301-496-2282

NIH-1767-1
(Rev. 6-81)

APPENDIX 4

EXAMPLE OF MANDATE FOR DCRT SERVICES TO NON-NIH AGENCY

Buckley -36-

Kit, Tinkham
CCIS

THE SECRETARY OF HEALTH AND HUMAN SERVICES
WASHINGTON, D.C. 20201

Jon Naughton

AUG 19 1982

Memorandum to: Dale W. Sopper, Assistant Secretary
for Management and Budget

Edward N. Brandt, Jr., Assistant Secretary
for Health

Subject : Transfer of the Office of the Secretary Computer Workload to the National Institutes of Health

I have reviewed the proposal to transfer the Office of the Secretary computer processing workload to the National Institutes of Health and approve the concept.

Please proceed to develop the specific memorandum of understanding and associated specifications necessary to effect the transfer in a smooth and orderly manner.

Richard S. Schweiker
Secretary

July 29, 1982

Study Team Chairperson,
Chief, NIH Computer Center

Proposal for the transfer of ODP workload to the NIH Computer Utility

Director, DCRT

In mid-June 1982, Mr. Sopper, Assistant Secretary for Management and Budget, HHS, requested Dr. Wyngaarden's cooperation in determining the feasibility of transferring the workload of the Office of Data Processing, OS, to the NIH Computer Utility. At your request, I established a study team consisting of Messrs. Alterman, Rosenzweig, and myself of our staff and representatives from the ODP and the Office of Systems, OS to study the feasibility of such a transfer.

Receiving full cooperation from the staff of the ODP, the study team spent the next four weeks reviewing the facilities, services, costs, workload and operating procedures of the ODP. The information acquired during the study was then reviewed with the professional staff of the NIH Computer Center and a proposed strategy for such a transfer was developed. On July 27, 1982, the Study Team made a formal briefing, "Preliminary Strategy for the Transfer of ODP Workload to the NIH Computer Utility" (copy of briefing charts are enclosed for your review) to Mr. Sopper and others including Mr. Forbush, Director of Health Operations, PHS. Among other things, the briefing made the following major points:

- The NIH Computer Utility has adequate computational resources to accommodate the ODP workload without adverse impact on NIH programs.

- Based on actual workload and cost comparison, the NIH Computer Utility is over 60% less expensive than the ODP for the same work.

- There were both significant technical and policy/philosophy differences between ODP and the NIH Computer Utility and that although NIH would make "accomodations" where technically merited, it must be understood that all ODP work must adapt to NIH published standards.

- NIH support and service policies were explained emphasizing that every user received equal treatment for equal rates; all work must be paid for at the established rates and special services or priorities would not be available.

- o A tentative transition strategy and sequence for transferring the ODP workload was outlined pointing out that NIH could not accept any responsibility for the applications per se and that although NIH would conduct orientation seminars and provide professional guidance where appropriate, the responsibility for the transfer of all applications rests with HHS.

- o Since NIH would be accepting HHS workload, it would also be necessary to transfer positions (preferably empty) to the NIH Computer Center. It was pointed out that any positions transferred should not be taken from other NIH or PHS program areas.

The briefing terminated with the understanding that NIH had responded to Mr. Sopper's request for a proposal and that it was up to him to consider the proposal and inform us of his decision through the appropriate channel.

Considering the amount of processing work involved with respect to our processing capacity, this transfer will have no adverse affect on NIH programs as long as the stated conditions for transfer are honored. In fact, the increased user base will permit us to distribute our operating costs over a larger number of users which will result in lower rates for both NIH and HHS users.

Joseph D. Haughton

Attachment
Briefing notes: "Preliminary Proposal for the Transfer of ODP Workload to the NIH Computer Utility"

PRELIMINARY STRATEGY

FOR THE

TRANSFER OF ODP WORKLOAD

TO THE

NIH COMPUTER UTILITY

J. D. Naughton
July 27, 1982

AGENDA

DEFINITION

PERSPECTIVE

COST COMPARISON

DIFFERENCES

TRANSITION STRATEGY

TRANSITION SEQUENCE

PERSONNEL TRANSFER

ACTION ITEMS

PERSPECTIVE

	ODP	NIH	NIH/ODP
PROCESSING POWER (MIPS)	4.3	60	14.1
TECHNOLOGY	-2	C	-
DATA STORAGE (ON-LINE):			
DASD (BILLION BYTES)	27	157	5.8
MSS (BILLION BYTES)	0	236	-
TAPE DRIVES	40	125	3.1
WORKLOAD (1,000/MO.):			
BATCH	29	133	4.6
TSO	8	18	2.3
ATMS/WYLBUR	(UA)	132	-
CICS/IMS	(UA)	38	-
USERS	.5	9.9	19.8
STAFFING LEVEL:			
FEDERAL	105	152	1.4
CONTRACTOR	12	3	.3
SERVICES RENDERED (MILLION/MO.)	$.55	$ 2.1	3.8

USER COST COMPARISON
(Actual Workload, May 1982)

	ODP	NIH	%
PROCESSING:			
BATCH (MAXIMUM)	$268	$ 86 (122)	-68 (-54)
TIME SHARING (MAXIMUM)	47	18 (20)	-62 -57)
TOTAL	$315	$104	-67
AVERAGE COST/JOB	$17.60	$3.31	-81
DATA STORAGE:			
DASD (EST. FOR PAYROLL)	$ 33	$ 25	-24
MSS	-	.003	-
MISCL.:			
TP, TERMINALS, ETC.	$ 49	$ 49*	0

DIFFERENCES

TECHNICAL:

A. TECHNICALLY TRIVIAL BUT REQUIRING SUBSTANTIAL DETAILED EFFORT, OBJECTIONAL TO USERS.

B. REQUIRING SUBSTANTIVE CHANGE FOR ODP USERS AND/OR NIH.

- RESOURCE STANDARDS
- JOB SCHEDULING
- SOFTWARE:

    CICS --> IMS
    ATMS --> WYLBUR
    ANSI COBOL --> OS/VS COBOL

C. NEW FACILITIES OR THOSE REQUIRING NO CHANGES FOR ODP USERS. (EG, ADVANTAGES)

POLICY/PHILOSOPHY

- EQUIPMENT
- SOFTWARE
- RESPONSIBILITY
- EQUALITY

TRANSITION STRATEGY

PHASED

PARALLEL

- ORIENTATION SEMINARS(S)
- TRANSITION NOTES
- NIH GUIDANCE
- USER APPLICATION CONVERSION
  (CONTRACTOR ASSISTANCE)
- NIH SYSTEMS CONVERSION

TRANSITION SEQUENCE

SEQUENCE

1. INSTALL TP LINE(S) TO NIH
2. TRANSFER TSO
3. TRANSFER ATMS
4. TRANSFER SMALL BATCH
5. TRANSFER CICS TO IMS
6. TRANSFER LARGE BATCH
   (PAYROLL + STANDARD ACCTS.)
7. REMOVE 168 AND PERIPHERALS
8. TRANSFER TP NETWORK TO NIH
9. CONVERT 4341 TO NETWORK NODE

PERSONNEL TRANSFER

OPERATIONS (NON SUPERVISORY)	39
PROFESSIONAL & ADMIN.	20

- TELEPROCESSING
- SECURITY/PRIVACY
- SYSTEMS PROGRAMMING
- PROCUREMENT
- USER ASSISTANCE
- TRAINING
- STAFF ASSISTANT

ACTION ITEMS

DECISION

INFORM ODP STAFF AND USERS

DESIGNATE COORDINATOR

DISCONTINUE NEW DEVELOPMENT AT ODP

- HARDARE
- SOFTWARE
- APPLICATIONS
- DASD ALLOCATION

FREEZE HIRING

APPENDIX 1

CHARTER
OF
ADVISORY COMMITTEE ON COMPUTER USAGE

approved by Dr. Ostertag
Approved by Dr. Ostertag 10/23/79

June 30, 1978

CHARTER

Advisory Committee on Computer Usage

Authority

Established by the Deputy Director for Science, NIH, through memorandum dated November 9, 1977.

Structure

The Committee consists of one member from each BID at the NIH that has an intramural scientific program. Members are appointed by the Deputy Director for Science, NIH, for overlapping terms not to exceed three years. Members may not serve more than two terms. The Chairman is appointed by the Deputy Director for Science, NIH, from among the members for a term not to exceed three years. An Executive Secretary is also appointed by the Deputy Director for Science, NIH.

Function

The Committee provides advice to the Deputy Director for Science, NIH, and the Director, DCRT, regarding:

1. Usage, operation, financing, and procurement of all computer systems at the NIH or used by the NIH that have an extensive intramural user base or have a major impact on intramural resources across BIDs.

2. Short- and long-term planning of computer systems at the NIH.

3. Suggestions and complaints received from users.

4. Related matters arising from requests made by the Deputy Director for Science, NIH, the Director, DCRT, and other NIH officials and staff, or generated by the Committee members.

Meetings

Meetings shall be scheduled at a regular time each month, but may be cancelled or special meetings may be called by the Chairman. The agenda for each meeting shall be determined by the Chairman. With the approval of their Scientific Directors, members may select an Alternate to attend in their absence. Alternates may also attend with ~~the~~ members. Minutes of the meetings shall be kept by the Executive Secretary.

APPENDIX 2

EXAMPLE OF REQUEST FOR DCRT ASSISTANCE

MEMORANDUM

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
NATIONAL INSTITUTES OF HEALTH

TO : Director, DCRT
for Director, NIDR
Director of Intramural Research, NIDR

DATE: March 28, 1975

FROM : Chief, LB, NIDR

SUBJECT: Computer Graphic Display of Macromolecular Structures

We have started with Mr. Richard Feldmann in DCRT a program to utilize present graphic facilities to display collagen structures. This method will initially serve educational purposes and will bring our ability to examine collagen molecular structure to the state that is now routine for other proteins. The next step will be to utilize the method as a research tool to examine interactions between collagen molecules. This has been done so far using one-dimensional simplifications. Our initial success indicates that a three-dimensional study will be very fruitful in understanding collagen fibril structure and formation. Our interest in the computer graphic approach is great enough that beginning in June 1975, a Staff Fellow (Dr. Benes Trus) trained in both protein structure and computer techniques will be working essentially full time on the project.

The problem of molecular packing of large molecules such as collagen requires a somewhat different approach than displaying of structure as atomic coordinates. Surfaces in three dimensions, the equivalent of space filling models, need to be examined in an interactive system. As the equipment and techniques to do this become available, it is critical that NIH have them to be utilized in the kind of problem described here.

On a longer range, we are considering even more complex problems of structure at higher levels such as collagen-proteoglucan interactions that determine connective tissue morphology. As more and more information becomes available, it is clear that it can be correlated and interpreted only by interactive computer graphic methods. The problem is therefore a continuing and expanding one and applies to all biological structures as well as connective tissue. It is important, therefore, that NIH as a minimum keep abreast of the state-of-the-art.

Karl A. Piez

MEMORANDUM

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
NATIONAL INSTITUTES OF HEALTH

TO : Dr. Arnold W. Pratt, Director
Division of Computer Research
and Technology
Bldg. 12A, Room 3033

DATE: April 8, 1975

FROM : Dr. Alan N. Schechter
Chief, Section on Macromolecular
Biology, LCB, NIAMDD

A.N. Schechter

SUBJECT: Updating of Computer Graphics Facility

This laboratory (which is under the directorship of C.B. Anfinsen) is engaged in the study of several proteins whose X-ray structure is known — bovine pancreatic ribonuclease, staphylococcal nuclease, human hemoglobin A — by a variety of techniques, such as peptide synthesis, immunochemistry, enzymology, NMR, fluorescence spectroscopy, etc. During the last six or seven years, many members of the Laboratory of Chemical Biology have made extensive use of the Computer Graphics Facility in their studies of protein structure — function relations.

The library of protein structures on computer which has been built up by Richard Feldmann has been of invaluable assistance. We have examined the X-ray structures in planning experiments and analyzing their results. We have made diagrams and photographs from the display for illustrating points of structure and function for diagrams in publications (several reprints of which are attached) and in seminars and lectures. In addition several movies have been produced — e.g., on the structure of nuclease, the structure of ribonuclease, the structure of calcium binding proteins, the use of NMR in determining protein structure, etc. — which have been extremely useful in illustrating experimental results and interpretations.

Of equal or greater importance, the Computer Graphics Facility has been of primary experimental use in interpreting NMR results in terms of distances in proteins, in minimizing energies in the prediction of protein structures, etc. We expect these uses to expand in the future.

2.

In general, I wish to comment that Richard Feldmann has done a superb job in this work. He has been of great direct help to many of us in these projects. In addition he has obtained an international reputation and people journey from all over to work with the equipment. His Microfiche Atlas of Protein Structure also seems likely to become a major tool of research and teaching.

On the basis of all the above, I believe strongly that it would be appropriate for the NIH to invest in the Evans and Sutherland equipment for 4 X 4 matrix multiplication to update or replace the Adage machinery. This will allow computations for rotations, etc. to be done much more quickly, allow scale changes, display surfaces, and have other improvements necessary and commensurate with the importance of this facility.

MEMORANDUM

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
NATIONAL INSTITUTES OF HEALTH

TO : Director, DCRT
Through: Director of Intramural Research, NIDR

DATE: May 11, 1977

FROM : Chief, LB, NIDR

SUBJECT: Densitometer for Digitizing Negatives, Central Facility.

We have a need for a high quality instrument to digitize electron micrograph plates prior to image processing. However, we cannot justify its purchase owing to the high cost and the limited use that any one user would have for it. This would seem to be a suitable instrument for central location and use. Dr. Benes Trus of this Laboratory has discussed it with Mr. Richard Feldmann who suggests that DCRT and one or more other Institutes might be interested and could share the cost.

The instrument we have in mind can digitize virtually any negative at very high resolution and can perform several kinds of data manipulation. The cost is $70,000-80,000. It requires a small computer such as a PDP 11. Location in and supervision by DCRT would be appropriate.

Can this be considered?

Karl A. Piez

copies: Dr. Benes Trus
Mr. Richard Feldmann

90-1200?

Lipsett & Herman

MEMORANDUM

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
NATIONAL INSTITUTES OF HEALTH

: Assistant Director Finance, DFM

DATE: June 24, 1977

OM : Executive Officer, DCRT

JECT: Central Digitizing Facility

NIDR has requested that DCRT provide a facility to digitize electron micrograph plates prior to computer image processing. The actual digitizing would be done by each research investigator and the data then processed on other DCRT equipment. NIDR will provide the appropriate scientific supervision of this instrument and we will house it in our space. The proposal was presented to the NIH Scientific Directors at their meetings of May 25 and June 1 and they have indicated their support for this facility.

This facility would require the purchase of a densitometer with a small attached computer with cost being in the ~~$70,000 - $80,000~~ range. (#103,000) Final decisions have not been made for the cost recovery of this facility but, several options are being considered at this time. Based on the attached budget list, DCRT has adequate funds within our S&SF equipment allocation for F.Y. 1977 and it is our understanding from a DFM memo of January 17 that equipment substitutions may be made as long as they remain within the total allocation.

The necessary documents to acquire the equipment are being prepared by NIDR and will be processed to meet the July 1st procurement deadline.

L. Lee Manuel

cc: Dr. Pratt
M. Reed

Attachment

MEMORANDUM

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
NATIONAL INSTITUTES OF HEALTH

TO : Director, DCRT

DATE: August 10, 1978

FROM : D.R. Davies
Chief, Section on Molecular Structure, LMB/NIAMDD

SUBJECT: Requirements for Additional Molecular Graphics Facilities

1. Our requirements for molecular graphics:

Protein crystal structure analysis involves extensive model building - a rather obscure electron density map has to be fitted with a molecular model. Hitherto, we have accomplished this by constructing a mechanical model using a half-silvered mirror to superimpose the model on the map - the so-called Richards Box. This has a number of disadvantages - it is bulky and occupies a lot of space; it is tedious and time-consuming; the final model produced is frequently subject to systematic error. Consequently, the development of computer graphics systems has led to a realization that most of what has been accomplished with mechanical models in the past, can now be more efficiently carried out through the development of molecular graphics programs for model building of proteins and nucleic acids. We have already made significant use of the modeling programs available at the Computer Department of UNC, Chapel Hill, and more recently we have been able, through a collaboration with Dr. Robert Diamond of the MRC, Cambridge, to implement his "BILDER" program on the Evans & Sutherland picture system in DCRT. We anticipate that our requirements for use of this program will be extensive, involving periodic examination of models vis a vis electron density maps, difference maps, etc.

2. Projected heavy use of DCRT system:

At the same time, we expect that there will be increasingly extensive use of the DCRT system through the catalytic influence of Richard Feldmann, for the production of slides, movies, etc., and for the examination of specific proteins and nucleic acids, as well as smaller chemical structures. We anticipate that over the next two years, the level of use of the DCRT picture system, already considerable, will become unbearably heavy.

3. One solution to this problem would be to encourage very heavy users to obtain their own graphics facilities, thus freeing up the time available on the DCRT system for users who wish to make use of its unique color facilities. I would like now to examine this possibility as it relates to the Section on Molecular Structure, LMB/NIAMDD.

4. Current computer facilities in the Section consist of a PDP 11/70 with 128K of memory, one RP04 disc drive, a TU16 tape drive, and three terminals. It is the opinion of the members of the Section that harnessing

an E&S Picture System II to this computer would effectively halt all other computations during the use of the graphics programs. Since for much of the time our 11/70 is continuously in use, we would prefer, if possible, not to tie it up in this way, and would recommend instead replacement of the 11/70 by a more powerful computer.

5. Such a computer could be the new VAX-11/780, which would have the capacity to handle our existing computations together with the operation of the E&S picture system. The VAX has the not insignificant advantage from our point of view, that the existing programs for the 11/70 should be immediately capable of running on the VAX, thus avoiding the necessity of repeating the conversion work of the last two years. Other systems, such as the DEC 20 do not offer this degree of compatibility and of course, this is even more true of other brands of computers.

6. With regard to the choice of graphics systems, we feel that there are compelling reasons for sticking with the Evans & Sutherland system, of which the principal one is compatibility with the DCRT system, enabling our experiences and programs to be immediately available to the NIH computing community. We have also a significant investment in programming for the E&S system that would not be wasted. The protein crystallographers in other laboratories are somewhat split at present, but a number of them are in the process of acquiring this system. Finally, we would have the advantage of a commercial operation with locally available service.

David R. Davies

COST OF ACQUISITION OF E&S PS2+VAX 11/780

Evans & Sutherland Picture System 2	$68,500
Plus 16K 16-bit word memory module	3,000
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AR11 - not needed	$1,995
LPA11 - not needed	$6,000
RP06 - use existing RP04	$45,980
TE16 - use existing TU16	$19,930
	$73,905
Trade-in on remainder of 11/70 at present in LMB:	$30,000
Total credit (estimate):	$104,000
Total cost:	$169,000

Other Laboratories using or considering purchasing B&S Picture System

Cambridge MRC
London
Oxford
Bonosells
Heidelberg
Harvard
Yale
LaJolla
NIH
Groningen
San Francisco
Eugene, Oregon

APPENDIX 3

EXAMPLE FORMS FOR REQUESTING DCRT SERVICES BY NON-NIH AGENCY

RETURN TO:

Project Control Office, DCRT
Building 12A, Room 3009
National Institutes of Health
Bethesda, Maryland 20205

DCRT OUTSIDE ACCOUNT AUTHORIZATION

INTERAGENCY AGREEMENT

☐ Account Number
☐ Registered Initials
☐ Proj. Init. ☐ Storage Init.
☐ Box Number
☐ Authorization of Other Users
☐ DECsystem-10 Authorization

DCRT Account:

- This form must be completed for one or more of the following: to open a new account; to obtain DECsystem-10 authorization; to authorize additional users on an existing account; to obtain a box number; or to register initials.
- For additional assistance, call 496-6146
- All use will be in accordance with DCRT Standard Operating Procedures as expressed in the User's Guide and other technical publications. Use will be on a time available basis subject to NIH's production requirements.
- This agreement is of the nature of an interagency agreement in accord with the U.S. Code 31-686.

A. Individual Responsible For Account (Sponsor) *(Type or print name of individual responsible for use of services requested and for the action of all authorized users.)*

NAME	AGENCY NAME
TITLE	AGENCY ADDRESS
PHONE	

B. USERS *(Users already valid for this account need not be listed again.)*

		DCRT USE ONLY	
NAME		REGISTERED INITIALS	
ADDRESS	PHONE	DECsystem-10 #	BOX
NAME		REGISTERED INITIALS	
ADDRESS	PHONE	DECsystem-10 #	BOX
NAME		REGISTERED INITIALS	
ADDRESS	PHONE	DECsystem-10 #	BOX
NAME		REGISTERED INITIALS	
ADDRESS	PHONE	DECsystem-10 #	BOX
NAME		REGISTERED INITIALS	
ADDRESS	PHONE	DECsystem 10 #	BOX

C. AUTHORIZATION	SPONSOR'S SIGNATURE	DATE

D. NEW ACCOUNTS ONLY

DESCRIPTION OF SERVICES REQUESTED

PROJECT TITLE

FINANCIAL OFFICER RESPONSIBLE FOR RECEIVING AND PAYING BILLS

NAME	PHONE	ADDRESS
HHS USERS GIVE COMMON ACCT. NO. / AGENCY LOCATION CODE	SERVICES TO BE BILLED ON ☐ SF 1080 or ☐ SF 1081	*Internal Agency Reference (Agreement No., Purchase Order No., etc.)*

E. AUTHORIZATION TO COMMIT FUNDS OF REQUESTING AGENCY

SIGNATURE	TITLE	PHONE

F. DCRT/NIH ACCEPTANCE

SIGNATURE	TITLE	DATE

NIH 1767-3 (Rev. 4/82)

RETURN TO

Project Control Office, DCRT
Building 12A, Room 3009
National Institutes of Health
Bethesda, Maryland 20205

INTERAGENCY AGREEMENT FOR ANNUAL RENEWAL OF DCRT OUTSIDE ACCOUNT AUTHORIZATION

OFFICIAL NAME OF REQUESTING AGENCY AND COMPONENT

DCRT ACCOUNT

PERIOD COVERED BY RENEWAL | FROM | TO

CONDITIONS OF USE

By renewing the existing agreement for DCRT services, requester agrees to the following:

1. All use will be in accordance with DCRT Standard Operating Procedures as expressed in the User's Guide and other technical publications. Use will be on a time available basis subject to NIH's production requirements. Since the sponsor or his designee will submit computer runs directly to DCRT'S computer, the requesting agency assumes responsibility for all charges incurred.

2. This agreement is of the nature of an interagency agreement in accord with the U.S. Code 31-686.

3. If estimated maximum costs, amounts obligated, fiscal year limitations, etc., are required by internal procedures of requesting agency, the requester assumes full responsibility for assuring that these are not exceeded and for reimbursing NIH for services actually used even if any such internal limitations are exceeded. Payment will be made by the requesting agency upon receipt of periodic billings initiated by the Office of Financial Management, NIH, based on actual services used at standard rates of the NIH Service and Supply Fund.

4. When the use requested is to be terminated, requester will so inform DCRT and will initiate steps to: release all tapes, disks, equipment and online storage space being used; request deactivation of the account number and all user initials assigned to it; and notify the Technical Information Office to suspend all mailing of technical literature. *In the event the requester fails to do this, DCRT upon discovering that use has discontinued will do so with the actual costs of doing so charged to the requester.*

FINANCIAL OFFICER RESPONSIBLE FOR RECEIVING AND PAYING BILLS

NAME *(Print or type)* | PHONE

TITLE | APPROPRIATION NO.

ADDRESS

METHOD OF PAYMENT *(If known)* | Services to be billed on ☐ SF-1080 or ☐ SF-1081 | Internal Agency Reference (Agreement No., Purchase Order No., etc.)

AUTHORIZATION TO COMMIT FUNDS OF REQUESTING AGENCY

NAME | SIGNATURE

TYPE OR PRINT | DATE

TITLE | PHONE

ORGANIZATION

DCRT/NIH ACCEPTANCE

NAME | SIGNATURE | DATE

TITLE ~~Assistant Director, DCRT, NIH~~ | PHONE 301-496-2282

NIH-1767-4
(Rev. 6-81)

APPENDIX 4

EXAMPLE OF MANDATE FOR DCRT SERVICES TO NON-NIH AGENCY

Buckley -36-

Ken Tinkham
CCIS

THE SECRETARY OF HEALTH AND HUMAN SERVICES
WASHINGTON D C 20201

Joe Naughton

AUG 19 1982

Memorandum to: Dale W. Sopper, Assistant Secretary
for Management and Budget

Edward N. Brandt, Jr., Assistant Secretary
for Health

Subject : Transfer of the Office of the Secretary Computer Workload to the National Institutes of Health

I have reviewed the proposal to transfer the Office of the Secretary computer processing workload to the National Institutes of Health and approve the concept.

Please proceed to develop the specific memorandum of understanding and associated specifications necessary to effect the transfer in a smooth and orderly manner.

Richard S. Schweiker
Secretary

July 29, 1982

Study Team Chairperson,
Chief, NIH Computer Center

Proposal for the transfer of ODP workload to the NIH Computer Utility

Director, DCRT

In mid-June 1982, Mr. Sopper, Assistant Secretary for Management and Budget, HHS, requested Dr. Wyngaarden's cooperation in determining the feasibility of transferring the workload of the Office of Data Processing, OS, to the NIH Computer Utility. At your request, I established a study team consisting of Messrs. Alterman, Rosenzweig, and myself of our staff and representatives from the ODP and the Office of Systems, OS to study the feasibility of such a transfer.

Receiving full cooperation from the staff of the ODP, the study team spent the next four weeks reviewing the facilities, services, costs, workload and operating procedures of the ODP. The information acquired during the study was then reviewed with the professional staff of the NIH Computer Center and a proposed strategy for such a transfer was developed. On July 27, 1982, the Study Team made a formal briefing, "Preliminary Strategy for the Transfer of ODP Workload to the NIH Computer Utility" (copy of briefing charts are enclosed for your review) to Mr. Sopper and others including Mr. Forbush, Director of Health Operations, PHS. Among other things, the briefing made the following major points:

- The NIH Computer Utility has adequate computational resources to accommodate the ODP workload without adverse impact on NIH programs.

- Based on actual workload and cost comparison, the NIH Computer Utility is over 60% less expensive than the ODP for the same work.

- There were both significant technical and policy/philosophy differences between ODP and the NIH Computer Utility and that although NIH would make "accomodations" where technically merited, it must be understood that all ODP work must adapt to NIH published standards.

- NIH support and service policies were explained emphasizing that every user received equal treatment for equal rates; all work must be paid for at the established rates and special services or priorities would not be available.

- o A tentative transition strategy and sequence for transferring the ODP workload was outlined pointing out that NIH could not accept any responsibility for the applications per se and that although NIH would conduct orientation seminars and provide professional guidance where appropriate, the responsibility for the transfer of all applications rests with HHS.

- o Since NIH would be accepting HHS workload, it would also be necessary to transfer positions (preferably empty) to the NIH Computer Center. It was pointed out that any positions transferred should not be taken from other NIH or PHS program areas.

The briefing terminated with the understanding that NIH had responded to Mr. Sopper's request for a proposal and that it was up to him to consider the proposal and inform us of his decision through the appropriate channel.

Considering the amount of processing work involved with respect to our processing capacity, this transfer will have no adverse effect on NIH programs as long as the stated conditions for transfer are honored. In fact, the increased user base will permit us to distribute our operating costs over a larger number of users which will result in lower rates for both NIH and HHS users.

Joseph D. Haughton

Attachment
Briefing notes: "Preliminary Proposal for the Transfer of ODP Workload to the NIH Computer Utility"

PRELIMINARY STRATEGY

FOR THE

TRANSFER OF ODP WORKLOAD

TO THE

NIH COMPUTER UTILITY

J. D. Naughton
July 27, 1982

AGENDA

DEFINITION

PERSPECTIVE

COST COMPARISON

DIFFERENCES

TRANSITION STRATEGY

TRANSITION SEQUENCE

PERSONNEL TRANSFER

ACTION ITEMS

PERSPECTIVE

	ODP	NIH	NIH/ODP
PROCESSING POWER (MIPS)	4.3	60	14.T
TECHNOLOGY	-2	C	-
DATA STORAGE (ON-LINE):			
DASD (BILLION BYTES)	27	157	5.8
MSS (BILLION BYTES)	0	236	-
TAPE DRIVES	40	125	3.1
WORKLOAD (1,000/MO.):			
BATCH	29	133	4.6
TSO	8	18	2.3
ATMS/WYLBUR	(UA)	132	-
CICS/IMS	(UA)	38	-
USERS	.5	9.9	19.8
STAFFING LEVEL:			
FEDERAL	105	152	1.4
CONTRACTOR	12	3	.3
SERVICES RENDERED (MILLION/MO.)	$.55	$ 2.1	3.8

USER COST COMPARISON
(Actual Workload, May 1982)

	ODP	NIH	%
PROCESSING:			
BATCH (MAXIMUM)	$268	$ 86 (122)	-68 (-54)
TIME SHARING (MAXIMUM)	47	18 (20)	-62 -57)
TOTAL	$315	$104	-67
AVERAGE COST/JOB	$17.60	$3.31	-81
DATA STORAGE:			
DASD (EST. FOR PAYROLL)	$ 33	$ 25	-24
MSS	-	.003	-
MISCL.:			
TP, TERMINALS, ETC.	$ 49	$ 49*	0

DIFFERENCES

TECHNICAL:

A. TECHNICALLY TRIVIAL BUT REQUIRING SUBSTANTIAL DETAILED EFFORT, OBJECTIONAL TO USERS.

B. REQUIRING SUBSTANTIVE CHANGE FOR ODP USERS AND/OR NIH.

- RESOURCE STANDARDS
- JOB SCHEDULING
- SOFTWARE:

  CICS --> IMS
  ATMS --> WYLBUR
  ANSI COBOL --> OS/VS COBOL

C. NEW FACILITIES OR THOSE REQUIRING NO CHANGES FOR ODP USERS. (EG, ADVANTAGES)

POLICY/PHILOSOPHY

- EQUIPMENT
- SOFTWARE
- RESPONSIBILITY
- EQUALITY

TRANSITION STRATEGY

PHASED

PARALLEL

- ORIENTATION SEMINARS(S)
- TRANSITION NOTES
- NIH GUIDANCE
- USER APPLICATION CONVERSION
  (CONTRACTOR ASSISTANCE)
- NIH SYSTEMS CONVERSION

TRANSITION SEQUENCE

SEQUENCE

1. INSTALL TP LINE(S) TO NIH
2. TRANSFER TSO
3. TRANSFER ATMS
4. TRANSFER SMALL BATCH
5. TRANSFER CICS TO IMS
6. TRANSFER LARGE BATCH
   (PAYROLL + STANDARD ACCTS.)
7. REMOVE 168 AND PERIPHERALS
8. TRANSFER TP NETWORK TO NIH
9. CONVERT 4341 TO NETWORK NODE

PERSONNEL TRANSFER

OPERATIONS (NON SUPERVISORY)	39
PROFESSIONAL & ADMIN.	20

- TELEPROCESSING
- SECURITY/PRIVACY
- SYSTEMS PROGRAMMING
- PROCUREMENT
- USER ASSISTANCE
- TRAINING
- STAFF ASSISTANT

ACTION ITEMS

DECISION

INFORM ODP STAFF AND USERS

DESIGNATE COORDINATOR

DISCONTINUE NEW DEVELOPMENT AT ODP

- HARDARE
- SOFTWARE
- APPLICATIONS
- DASD ALLOCATION

FREEZE HIRING

SUMMARY FACTUAL DESCRIPTION OF THE PLANNING PROCESSES OF THE FOGARTY INTERATIONAL CENTER

"STUDY OF THE PLANNING PROCESSES AT NIH"

NIH Contract Number 1-OD-2-2122

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1. THE FOGARTY INTERNATIONAL CENTER: ITS MISSION AND ORGANIZATION

The Fogarty International Center (FIC) for Advanced Study in the Health Sciences is one of the six divisions in the 18 Bureaus, Institutes and Divisions (BID's) of the National Institutes of Health (NIH).

A. MISSION

The Center was established on July 1, 1968, through an organizational change by the Secretary, DHEW. Previously, NIH international activities were directed by the Office of International Research in OD, NIH. This office administered the funding of international scientific exchange programs, as well as coordinating the international research issues of the NIH. In 1981, in response to the recommendation of an NIH Task Force that examined the goals and organization of the FIC, the Director of the FIC was given the additional title of Associate Director for International Research, NIH. The rationale of this action was "to provide a focus for all international activities of the National Institutes of Health, and more accurately reflect the functional position that the Fogarty International Center occupies within the organizational structure of the National Institutes of Health."

The mission of the Center is to foster and coordinate the international activities of the NIH, and to manage efficiently and effectively the Center's own programs.

The official mission statement as presented in the Federal Register when the Center was established in 1968 was to:

- provide the facility for the assembly of scientists and leaders in the biomedical, behavioral, and related fields for discussion, study, and research relating to the development of science internationally as it pertains to health and its implications and applications for the future;

- further international cooperation and collaboration in the life sciences through its research programs, conferences, and seminars;
- provide post-doctorate fellowships for training in the United States and abroad and promote senior scientist exchanges between the United States and other countries;
- coordinate the NIH activities and functions generally concerned with the health sciences at an international level; and
- serve as a focal point for foreign visitors to the National Institutes of Health.

The mission of the FIC is generally to establish, foster, and facilitate international cooperation in biomedical research. It does not have specific research interests, but instead aims at coordinating the international research activities of all the other BID's. Its mission also includes coordination with other Federal agencies and Departments as well as with international health organizations.

B. PROGRAMS

The FIC is responsible for four types of activities, each of which includes two or more distinct programs. They are:

- Advanced International Studies in Health Sciences (AIS)
  - Scholars-in-Residence Programs
  - International Conferences Program
  - International Issues Study Program
- International Research and Awards (IRA)
  - Senior International Fellowships
  - French, Swedish, and Swiss Fellowships for U.S. Scientists
  - International Research Fellowships
  - International Neurosciences Fellowships and International Tropical Disease Research Fellowships
  - Special Foreign Currency Program
- International Coordination and Liaison (ICL)
  - Exchange of U.S. and Foreign Scientists
  - Coordination of Bilaterial Agreements
- Foreign Scientists Assistance (FSA)
  - NIH Visiting Program
  - NIH Guest Researcher Program

The Advanced International Studies and International Research and Awards programs are managed by the FIC with FIC funds; the FIC also has responsibility for reviewing grant applications and making funding decisions for these programs. For the ICL and FSA programs, the FIC coordinates international activities and provides support services for the other BID's.

The FIC's principal administrative responsibilities include budget, personnel, and grants/procurement contracts management, performed by the Executive Officer and his staff. There is also a grants management specialist in the IRA Branch, who is responsible for grants-in-aid for conferences and fellowships.

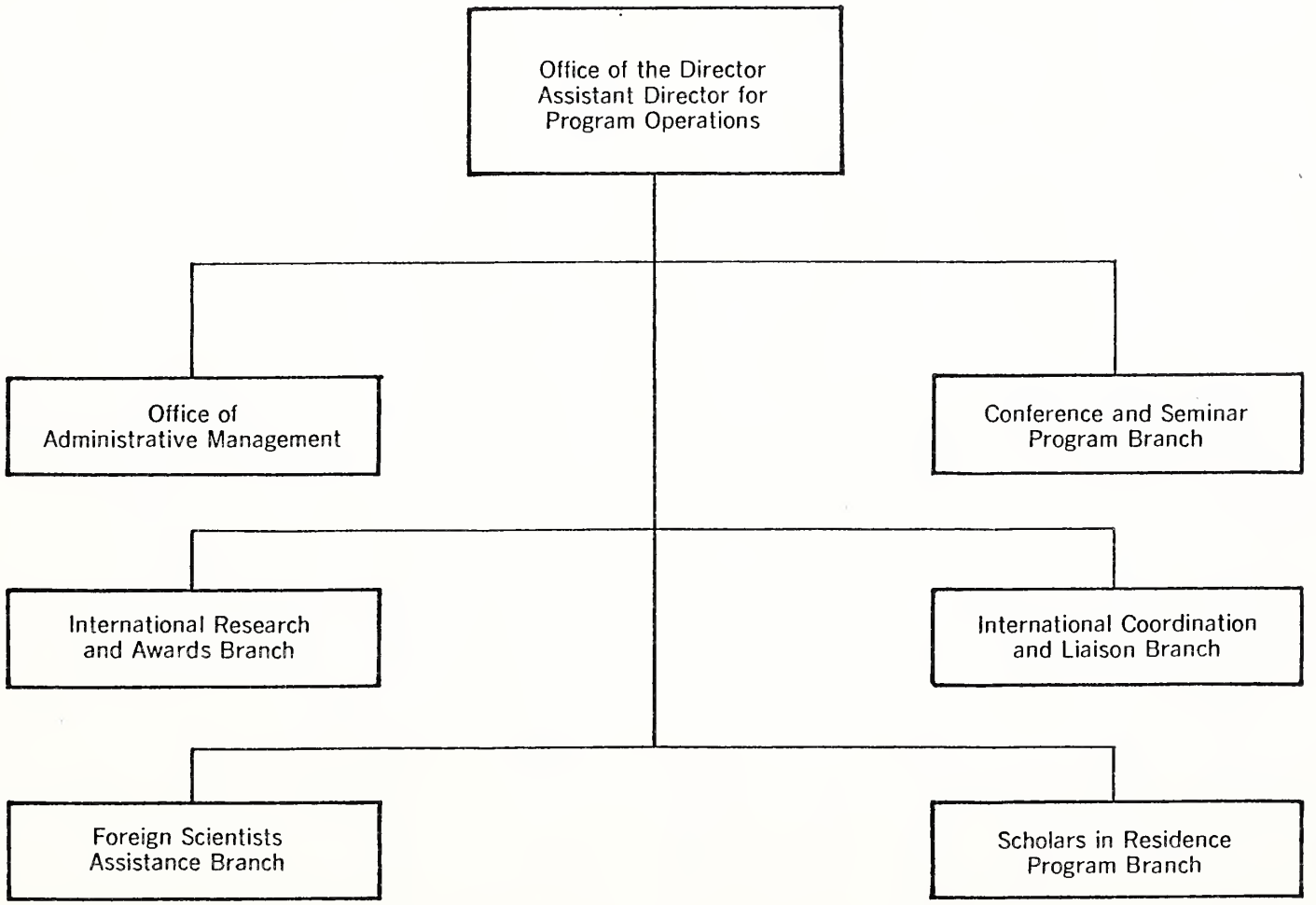
C. ORGANIZATION

The Center is divided into five branches under the Office of the Director (see Exhibit 1). The International Research and Awards Branch, the Foreign Scientists Assistance Branch, and the International Coordination and Liaison Branch correspond to three of the four FIC activity areas. The other area, Advanced International Studies in Health Sciences, is implemented through two branches: the International Issues Study Program Branch, and the Scholars-in-Residence Program Branch.

The Office of Administrative Management provides administrative support to the Center; the Budget Officer is in this office and reports to the Executive Officer.

The Office of the Director includes the Assistant Director for Program Operations, whose responsibilities include the Center's planning activities.

Exhibit FIC-1
Organization Chart
John E. Fogarty International Center for Advanced Study in the Health Sciences



2. OVERVIEW OF THE PLANNING COMPONENT

A. ROLE OF PLANNING AT THE FIC

The basic role of planning at the FIC is to present the logical options for use of the Center's limited resources.

In terms of specific objectives, the following were identified:

- To assure comprehensive and continuing consideration of all possible issues and options.
- To assist in the selection of alternative courses of action.
- To assist in informing the scientific community and other interested groups (Congress, other government agencies, other countries) of the program of the FIC.
- To coordinate the decision-making activities of the FIC managers.

The role of planning at the Center is simple to define, since planning activities are performed by the Assistant Director for Program Operations. In this position are subsumed several responsibilities which, in BID's with larger staffs, would be spread among several staff members. These responsibilities include program operations, planning, evaluation, reporting, program analysis, legislation and representation on several trans-NIH ad hoc and standing committees.

B. KEY ACTORS IN FIC PLANNING PROCESSES

The Assistant Director for Program Operations is the planning officer and the key figure in all of the Center's principal planning processes. Important planning decisions are usually discussed in weekly Branch Chief meetings, which include the FIC Director, Assistant Director, Executive Officer, and Branch Chiefs.

The FIC currently does not have an advisory committee, although the proposal to establish one is currently being reviewed in DHHS. This lack of an advisory body at the highest level was viewed by the Assistant Director as a barrier to planning (see Section 5); the ability to focus Institute staff on long-range planning was seen as a major potential benefit of an advisory body.

The establishment of an FIC Advisory Committee was one of the suggestions of the Task Force which reporteted to the NIH Director in 1979 to study the mission and operations of the FIC. This Task Force was formed as one response to Congressional and White House initiatives to expand the role of the U.S. in international health. In addition, the NIH Director desired to clarify the mission of the FIC. The Task Force consisted of seven senior DHHS and NIH officials, who reviewed the FIC's current organization and resources, NIH international activities, BID views about the FIC's mission, and the place of the FIC among other international health organizations.

The Task Force urged that the "international focus" should "serve as the unifying concept for the development of a more cohesive program." It made 23 recommendations about the future direction of the Center. The first recommendation was for the establishment of an outside advisory body. Its second recommendation was to give the FIC Director the additional title of NIH Associate Director for International Research.

Among its other recommendations, the Task Force stated that "the FIC establish the capability to provide the Director, NIH, with an ongoing comprehensive assessment of the status of NIH international activities to include indications of plans and priorities for future activities, and estimates of budget requirements." Another recommendation called for FIC to play a larger role of contact and liaison between the Office of International Health (OIH) and the NIH categorical Institutes.

The FIC has other advisory bodies at the program level; these include a Scholars Advisory Panel for the Scholars-in-Residence Program, and secondary review groups for certain international awards. However, these advisory bodies are solely concerned with program review activities, and do not become involved in the FIC planning processes.

3. THE PLANNING OFFICE

A. ORGANIZATION

The organization of the FIC planning office is centralized. The Assistant Director for Program Operations devotes approximately 40 percent of her time to planning activities. Additional staff resources devoted to planning include 40-50 percent of the FIC Information Officer (GS 9 or 11), and part of the secretary's time. For other planning needs, the FIC program staff can be called upon, if needed.

B. FUNCTIONS

The office of the Assistant Director for Program Operations is responsible for all planning activities except budget planning. These include:

- Research Plan (Three-Year Program Plan and NIH Research Plan submission)
- Evaluation Plan
- FIC Annual Report
- Annual Report on NIH International Activities
- Legislative Planning
- Program Planning
- Prevention Plan

Of these, the Research Plan, Evaluation Plan, and the Annual Report of International Activities of the NIH are required by NIH. The Annual Report of International Activities covers the international activities of all the BID's; the FIC plays a coordinating and editing role in its production. Requirements for its preparation are in the FIC's mandate.

As stated above, since the FIC planning office does not exist as a separate entity, the Assistant Director for Program Operations considers planning to be continuously injected into all of her program operations and responsibilities. In addition to the major functions described above, the office is also responsible for trans-NIH issues, special reports, and the development of other management tools, such as policy and procedural guidelines for international activities, which are prepared for NIH-wide use. The office also prepares the policies and procedures for the FIC itself.

The preparation of special reports is an important function of the FIC, because of its role as coordinator of international activities. For example, the Assistant Director's office prepared the NIH section of a report for the World Health Organization on "Health for All by the Year 2000." This report centered on DHHS planning activities with regard to health research.

The Assistant Director serves on several trans-NIH committees, and prepares the Fogarty response whenever an NIH request for data requires a response. She also clears the FIC response for all trans-NIH committees on which she is not a member.

The Assistant Director has the role to minimize the effect of such requests and special reports on the rest of the Center's staff. Wherever possible, she uses previously gathered information and adapts it for the new requirements.

The Annual Report of International Activities is a major product for the Center; data is collected by FIC by providing guidance for the BID's to respond with data in a format useful for preparing the report. The instructions are signed by the FIC Director, and the data is collected. The Assistant Director then is responsible for preparing the Annual Report from this data.

As mentioned above, the Assistant Director is responsible for a variety of other functions in connection with her supervision of program operations. These include, but are not limited to:

- Evaluation
- Trans-NIH Issues
- Special Reports
- Policy and Procedural Guidelines

A significant amount of effort is devoted to these four functions, particularly the last three. Trans-NIH issues and special reports are closely allied, since both usually require requests for specific information about FIC activities. In addition to NIH requests, the FIC is involved with such agencies as the World Health Organization, and the Assistant Director's office prepares reports and responses for these groups.

C. INTERRELATIONSHIPS OF THE PLANNING OFFICE WITH OTHER OFFICES

Because of the many non-planning responsibilities of the Assistant Director, the involvement of the planning office with other NIH offices is very extensive. The office interacts with the planning, evaluation, and legislation offices of OD/NIH, as well as supplying the FIC representative or alternate representative for OMAR and trans-NIH committees.

Also, each BID has an international representative with whom the Assistant Director and other FIC staff work when information or action is required in the international area. Because all coordination of NIH international activities (administration of money, liaison with State Department, etc.) occurs through the Center, there is almost constant communication between the Center's staff and the BID's which sponsor any international activities.

In addition, the planning officer is actively involved in evaluation issues, and serves on several formal and informal committees to review research designs and methodologies for special studies, to assist in developing RFPs, and similar duties. These activities are helpful to planning in that they assist in the dissemination of ideas and methods for planning and program evaluation, as well as helping the FIC staff to maintain current knowledge about the plans and activities of other Institutes.

4. DESCRIPTION OF SPECIFIC PLANNING PROCESSES

This section describes the specific processes used in the Fogarty International Center to assist in program planning. The processes described here include:

- Strategic Planning
- Three-Year Program Plan and NIH Research Plan
- Evaluation Planning
- ADP/TC Plan
- FIC Annual Report
- Annual Report of International Activities

While these are formal activities, it should be repeated that, due to the relatively small size of the Center, a significant part of planning is continuous and informal. Because the Assistant Director, who is the planning officer, also has a variety of other responsibilities related to program operations, the planning element becomes inseparable from many of the other activities carried out by her office. This is seen as an advantage for planning, because it assists in injecting the planning issue in all aspects of the Center's activities. Planning is "always in the back of your mind," even when other issues are being addressed.

A. STRATEGIC PLANNING

To date, strategic planning has not been considered as a formal activity of the FIC. As discussed in Section 2.B, DHHS is currently considering a proposal to charter an advisory council for the Center. This is expected to increase the focus on strategic planning by the FIC staff.

While not expressly designed to function as a planning body, the 1979 Task Force to Assess the Mission and Functions of the Fogarty International Center functioned much like a planning body for the Center. The 23 recommendations of the Task Force, many of which have been adopted, were aimed at reformulating the mission and functions of the FIC and the activities required to implement the new mission and functions. One obvious function of the advisory council would be to continue the functions of the Task Force in regard to such strategic planning activities.

B. RESEARCH PLAN (THREE-YEAR PROGRAM PLAN AND NIH RESEARCH PLAN)

The principal planning activity of the Center is the preparation of its submission for the NIH Research Plan. This is also used as an internal planning document, and is usually referred to as the Three-Year Program Plan. However, these two documents are basically identical and are prepared using the process described here.

The plan is drafted and revised by the Assistant Director and the Branch Chiefs, and the writing of the plan is preceded by discussions about initiatives and priorities. The FIC Director make final decisions concerning the priorities placed on different research initiatives.

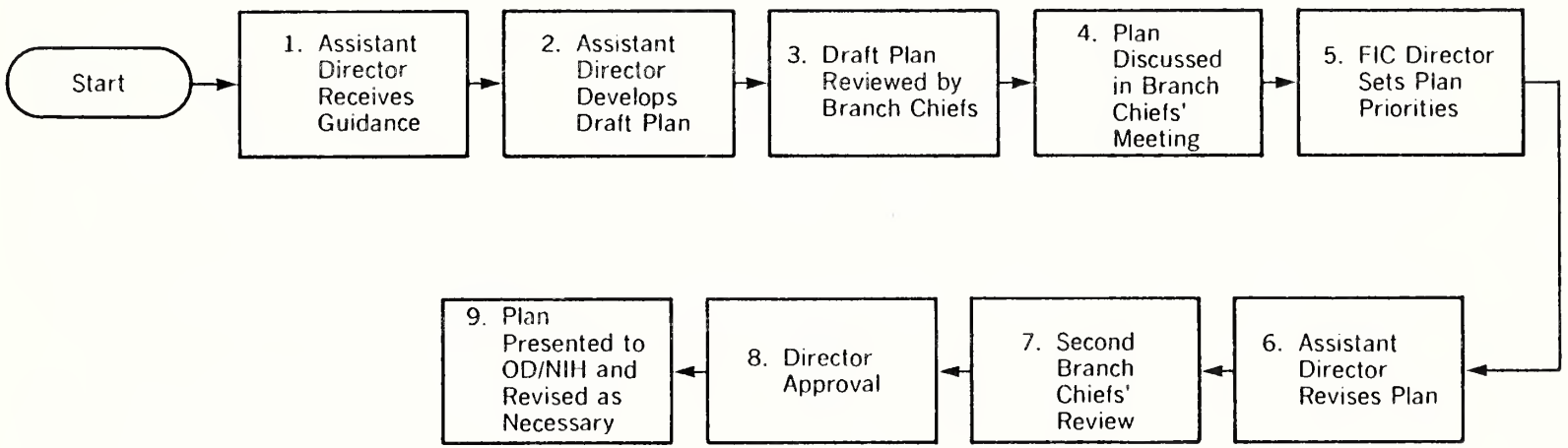
The FIC is somewhat different from research-oriented Institutes, in that there is no specific research program in the Center. Thus, the Research Plan does not include a research agenda. It is more a summary of the current status and expected changes in the program mechanisms, such as changes in the number of international fellows or awards.

It is expected, however, that the International Issues Study Program, which is currently a Branch within the Advanced International Studies program, will be elevated to a research program following the selection of a permanent Director. If this occurs, the Program will either have its own advisory council, or will be the special responsibility of the Center's national advisory council. At that time, a research agenda will have to be developed.

The Research Plan is prepared in nine steps, as shown in Exhibit 2.

The OD/NIH guidance on the annual research plan is received by the Assistant Director. She notes areas in which the guidance has changed from the previous year and examines the previous year's plan to determine what had been proposed in the old document which will be initiated or repeated this year.

Exhibit FIC-2
FIC Research Planning Process


Start
1. Assistant Director Receives Guidance
2. Assistant Director Develops Draft Plan
3. Draft Plan Reviewed by Branch Chiefs
4. Plan Discussed in Branch Chiefs' Meeting
5. FIC Director Sets Plan Priorities
6. Assistant Director Revises Plan
7. Second Branch Chiefs' Review
8. Director Approval
9. Plan Presented to OD/NIH and Revised as Necessary

The Assistant Director meets with each Branch Chief to discuss initiatives for his or her Program. Included in these discussions are budget projections, priorities, postponed activities, and other programmatic issues.

The Assistant Director then prepares a draft research plan. This is seen as more effective than preparation at the branch level, since the Assistant Director knows all of the branches' activities. Furthermore, were the branches to prepare their own drafts, the plans could be in various formats, or otherwise require more work than centralized authorship.

The draft research plan is sent to all Branch Chiefs for review. The entire plan is reviewed by each Chief, and thus each knows the activities and plans of each section of the FIC. This step helps to prevent inconsistencies and assure timeliness, as well as to increase awareness of FIC-wide objectives.

The Branch Chiefs have a weekly meeting with the Director, Assistant Director, and Executive Officer. Following review of the draft research plan, the Branch Chiefs discuss it during one of these meetings. Every aspect of the document is subject to question by the Branch Chiefs. However, the principal purpose of the meeting is to determine if the draft accurately describes the planned efforts for the coming three years. If the Branch Chiefs have additions, deletions, or changes in priorities, they are mentioned here.

Following this discussion, and based on the recommendations of the Assistant Director, the Director makes the final determination for the research priorities in the plan. A list of 30 to 40 potential programs is put together by the Branch Chiefs. These are reviewed by the Director, and projects are selected based on their scientific importance and availability of funds.

The Assistant Director revises the draft in keeping with the decisions of the Director and the comments and conclusions of the Branch Chiefs. The revised draft is again presented to the Branch Chiefs for final comment. Following minor revisions resulting from the Branch Chief's review, and approval by the Director, the Assistant Director submits the draft plan to OD/NIH. The document may be returned to the Assistant Director for final revision. The Branch

Chiefs are usually not consulted in preparing the final document, since previously-decided priorities are the basis of the final document. Finally, the document may again be revised to bring it into conformance with DHHS budget allowances.

C. EVALUATION PLANNING

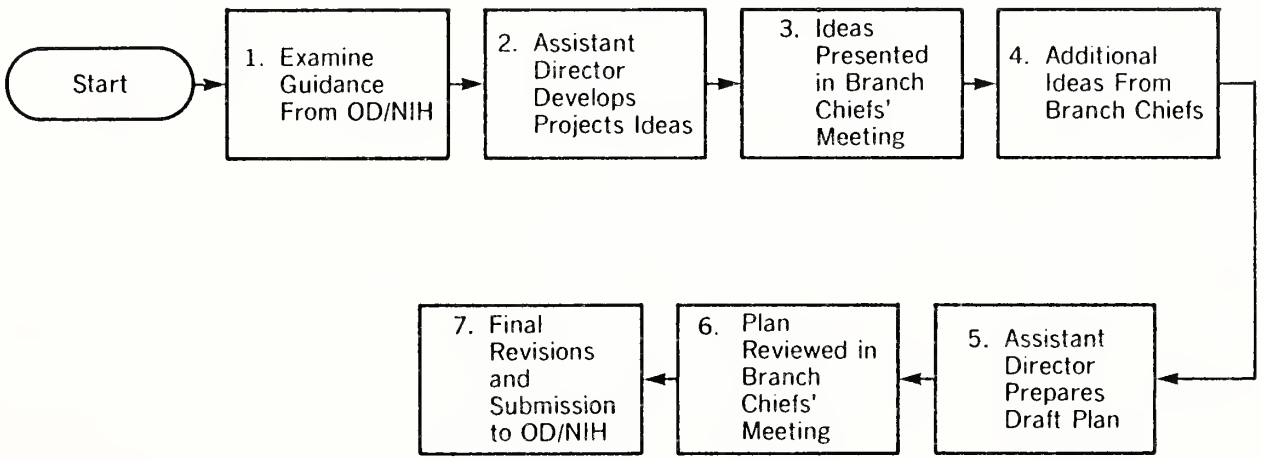
The Evaluation Plan is prepared in a manner similar to the research plan, in that the development of the document is the responsibility of the Assistant Director. The Center did not participate in the NIH Evaluation Program or prepare an Evaluation Plan until the FIC created the position of Assistant Director, which incorporates evaluation and planning.

While the Evaluation Plan is prepared specifically for application for 1% set-aside evaluation funds, the Plan is prepared within the framework of a general evaluation strategy for the entire Center. This strategy is developed on a continuous but unscheduled basis in the weekly Branch Chiefs meetings, as well as informally through the planning officer's additional responsibility for program evaluation. More formally, the Assistant Director develops a concept for the overall evaluation strategy, and presents this orally at the Branch Chief meetings during the evaluation cycle. The evaluation strategy describes both the immediate and long-term evaluation needs of the Center. Within this evaluation framework, and within known dollar limits, projects for the 1% set-aside Evaluation Plan are selected.

The Evaluation Plan is prepared by means of a seven-step process, as shown in Exhibit 3.

The Assistant Director receives the guidance and reviews it for content and format. It is considered more efficient to perform this process centrally rather than to send it to the Branch Chiefs. The requirements change so often, and the Branch Chiefs are so burdened with other work, that accuracy, consistency, and timeliness are better assured through the central process.

Exhibit FIC-3
FIC Evaluation Planning Process


Start
1. Examine Guidance From OD/NIH
2. Assistant Director Develops Projects Ideas
3. Ideas Presented in Branch Chiefs' Meeting
4. Additional Ideas From Branch Chiefs
5. Assistant Director Prepares Draft Plan
6. Plan Reviewed in Branch Chiefs' Meeting
7. Final Revisions and Submission to OD/NIH

The Assistant Director writes up several ideas for potential evaluation projects, based on the overall strategy, and her knowledge of program activities and of evaluation research. The two principal criteria for these project ideas are: 1) to learn more about programs whose effectiveness is unclear; and 2) to be able to develop a researchable question. Five ideas were developed for the 1983 Research Plan.

The draft evaluation project ideas are discussed with the Branch Chiefs at the weekly meetings. They comment, suggest revisions, and recommend priorities for the drafted project ideas.

Branch Chiefs may suggest additional evaluation project plans. This can be done either by writing up the idea or discussing it with the Assistant Director, who could take over the process of having the project appear in the Evaluation Plan. It is not unusual for Branch Chiefs to make such suggestions.

Based on the write-ups of her own and the Branch Chiefs' project ideas, the Assistant Director prepares a draft evaluation plan in the required formats. The completed draft is reviewed again in the weekly Branch Chiefs' meeting for any final revisions. The Assistant Director does a final revision of the Evaluation Plan and submits it to OD/NIH.

D. ADP/TC PLAN

The ADP/TC Plan is considered an administrative requirement and is therefore prepared in the office of the Executive Director.

E. FIC ANNUAL REPORT

The FIC Annual Report is looked upon as a planning document because it delineates the Center's mission, activities, and programs for outsiders. The document was originally prepared for Sen. Waxman's committee, but has since then been distributed to officials from other parts of NIH, DHHS, other government agencies, world health organizations, and foreign countries. Its function in planning is as a method to inform other agencies of FIC activities, and accomplishments, mission, and program plans.

The Annual Report is updated at the completion of each fiscal year. The Assistant Director collects data on program activities, budget and other administrative data from the branches, and coordinates production of the document.

F. NIH ANNUAL REPORT OF INTERNATIONAL ACTIVITIES

The Fogarty International Center prepares NIH's Annual Report of International Activities. Like the FIC Annual Report, the NIH Annual Report is seen as having potential for international planning, since it serves as a base of information on the international activities of all the BID's. Currently, there is no overall planning activity for NIH international involvements.

The process used to produce the Report is the responsibility of the Assistant Director. The Assistant Director prepares a guidance memorandum describing what is to be in the report. This guidance is distributed among all the BID's over the FIC Director's signature, in his role as Associate Director for International Research. It requests data to be developed and arranged so as to easily be integrated with the Report's outline.

The Assistant Director's office receives and edits the materials submitted by the BID's. The editing involves putting the text for all the BID's into a relatively consistent format and deleting sections that are either not relevant to the goals of the report or are too detailed to be included.

The production of the Annual Report is completed by FIC staff. The BID's are in general not requested to alter or approve the editing performed by the FIC.

G. LEGISLATIVE PLANNING

Legislative Planning is also performed in the office of the Assistant Director for Program Operations. There are no formal legislative planning processes. However, the Assistant Director does become involved in Legislative Planning, particularly in the sense of tracking and monitoring legislation which may have effect on the FIC or upon the international activities of the NIH. The purpose of this tracking both to influence legislation as well as to make the Center aware of pending legislation which may affect FIC program and NIH international activities.

5. OUTCOMES OF AND BARRIERS OF PLANNING

A. OUTCOMES OF PLANNING

Plannine has several effects on FIC activities. First, it affects program development and content, although this influence is somewhat indirect. The knowledge of program content by the Assistant Director sometimes can be of use in developing new directions and initiatives. This is accomplished by means of applying the planning perspective onto the day-to-day program activities. This sometimes yields insights into programs which are not visible to program directors, because they are too close to the program's operation.

In general the application of a long-range planning perspective is considered useful by the FIC planning officer. It is for this reason that the establishment of an FIC Advisory Committee is viewed as necessary, since such a committee could provide the long-range perspectives.

Inasmuch as planning influences program development, it also affects resource allocation. However, there is not a direct influence. In fact, the lack of coordination between budgeting and planning (described below) is an area which is seen as a barrier to effective implementation of plans.

Planning does influence the mission of the FIC in that its guidance and direction causes both FIC staff and other NIH staff to view the Center as the focal point for international activities. On the other hand, planning also assists in establishing boundaries for program activities and better defining the FIC mission.

There is also a relationship between planning and the NIH administrative management. The fact that the Center's planning officer is the Assistant Director for Program Operations results in indirect associations between planning and administrative management. The FIC planning activities involve issues which affect staffing, space allocation, resources, and other budget-related items.

B. BARRIERS TO PLANNING

Two barriers to planning at NIH were identified by the FIC planning officer: 1) lack of coordination between planning and budgeting in NIH as a whole; and 2) lack of an FIC advisory committee.

The lack of coordination between the planning and budgeting processes is seen to result from the separate flows of information and reporting mechanisms within NIH. The planning process for a given fiscal year is not continued through the implementation year. As a result, there is no formal coordination between the two processes. In the FIC, there is good but informal communication between the planning and budget officers. Nevertheless, because of the frequent revisions necessary in the NIH budget process, it is not unusual for BID budget officers to have to make decisions in a very short schedule. As a result, decisions made in planning documents can be changed in the implementation year by the budget officer, even though he may not have been involved in the advanced planning programs which would be necessary for him to make informed decisions.

The second barrier to planning, specific to the FIC, is the lack of an Advisory Committee. The lack of an FIC Advisory Committee is seen to result in a diminuation of planning activities, because at present there is no higher guidance by which the Institute Director and staff would be motivated to take a longer view of the activities of the Center.

6. SUMMARY AND OBSERVATIONS

Planning at the Fogarty International Center is closely interactive with other aspects of program operations, because of the multiple responsibilities of the Assistant Director, who is the planning officer. This situation is viewed as highly desirable, because of the ability of the Assistant Director to inject the planning element into all other aspects of program operations.

Because of the small size of the Center relative to other BID's, planning activities can occur in an informal manner. The close interaction of the Director, Assistant Director, and Branch Chiefs, resulting from their weekly meetings, permits the Center management to have a high degree of understanding about the nature and goals of planning, without the need for many formal written documents.

Key planning documents -- the FIC section of the NIH Research Plan and the Evaluation Plan -- and other documents related to planning are prepared by the Assistant Director's office, which has adequate knowledge of all FIC programs to know current activities and future plans. This has an additional benefit in that Branch Chiefs are relieved of additional paperwork requirements associated with planning. Planning documents are discussed in detail in weekly meetings of the Branch Chiefs. The FIC Director takes an active role in the discussion, revision, and approval of these documents.

Planning is viewed as having a close link to evaluation, and an informal evaluation strategy is developed to reflect planning needs.

The Center does not have an advisory committee, although a Task Force convened to examine the Center's mission suggested the establishment of one. An advisory committee would provide the Center staff with an additional long-term perspective which was viewed as useful to the planning process.

In addition, the Center currently does not have a research program, although the activities of one branch are expected to be upgraded to a research program upon the approval of a permanent Center Director. The action on the establishment of the Advisory Committee is also being postponed pending the appointment of a permanent Director.

The planning activities of the Center are closely tied to those of the other BID's, especially those with categorical research responsibilities. Because the Center's mission is to coordinate all NIH international research activities, the planning offices and other FIC staff must work closely with other BID's in order to estimate current and future resource requirements. This is particularly important because the NIH does not have an overall planning process for international activities.

7. SOURCES OF INFORMATION

Data were gathered from written sources, including published documents as well as internal reports and memoranda, and from personal interviews with key FIC staff.

Personal Interviews:

Dr. Coralie Farlee, Assistant Director for Program Operations
Ms. Susan Stark, Public Affairs Specialist

Documents:

Fogarty International Center, Briefing Book (mimeographed), August 2, 1982.

Fogarty International Center, "Director's Overview Statement", June 7, 1982.

Fogarty International Center, "Planning/Appropriation Briefing Session with the Acting Director, NIH", January 8, 1982.

Fogarty International Center, Memorandum from Acting Director, FIC to BID Directors, "NIH Annual Report of International Activities, FY 1982", September 15, 1982.

National Institutes of Health, Annual Report of International Activities, Fiscal Year 1981, NIH Publication No. 82-62, September, 1982.

Task Force to Assess the Mission and Functions of the Fogarty International Center (Thomas E. Malone, Chairman), "Task Force Report", submitted to NIH Director, June 14, 1979.

SUMMARY FACTUAL DESCRIPTION OF THE PLANNING PROCESSES OF THE DIVISION OF RESEARCH GRANTS

"STUDY OF THE PLANNING PROCESSES AT NIH"

NIH Contract Number 1-OD-2-2122

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1. DIVISION OF RESEARCH GRANTS: ITS MISSION AND ORGANIZATION

The Division of Research Grants (DRG) is one of the six Divisions among the 18 Bureaus, Institutes, and Divisions (BID's) in the National Institutes of Health (NIH).

A. MISSION

The DRG was established by the Surgeon General on January 1, 1946, under the authority of Section 301 of the Public Health Service Act. Originally called the Research Grants Office, its responsibility is and remains to administer research grants-in-aid funded by the PHS.

The DRG mission is broad and diverse, and can be summarized as support to NIH's extramural research and training programs. Specifically, it has the following missions:

- Provides staff support to the Office of Extramural Research and Training in the formulation of grant and award policies and procedures.
- Represents NIH in the assignment of applications among the components of the PHS, and further assigns NIH applications to supporting Institutes and Divisions and to initial review groups (IRG's).
- Provides for scientific review of NIH grant applications, and advisory and consultative services relative to grant policy and management matters.
- Administers the Grants Associates Program for the training of competent research scientists with potential to fill key positions as scientist administrators in the PHS; and the Extramural Associates Program to facilitate participation of women and ethnic minorities in NIH-supported research through knowledge of NIH policy and procedures that govern the award of PHS grants and contracts.
- Collects, stores, retrieves, analyzes, and evaluates management and program data needed in the administration of extramural programs.
- Disseminates information on extramural programs to the Congress, scientists, and general public.

B. PROGRAMS AND STRUCTURE

The Division is organized into five branches and four management and support offices, all reporting to the Office of the Director (see Exhibit 1). The five branches, and the programs they carry out, are:

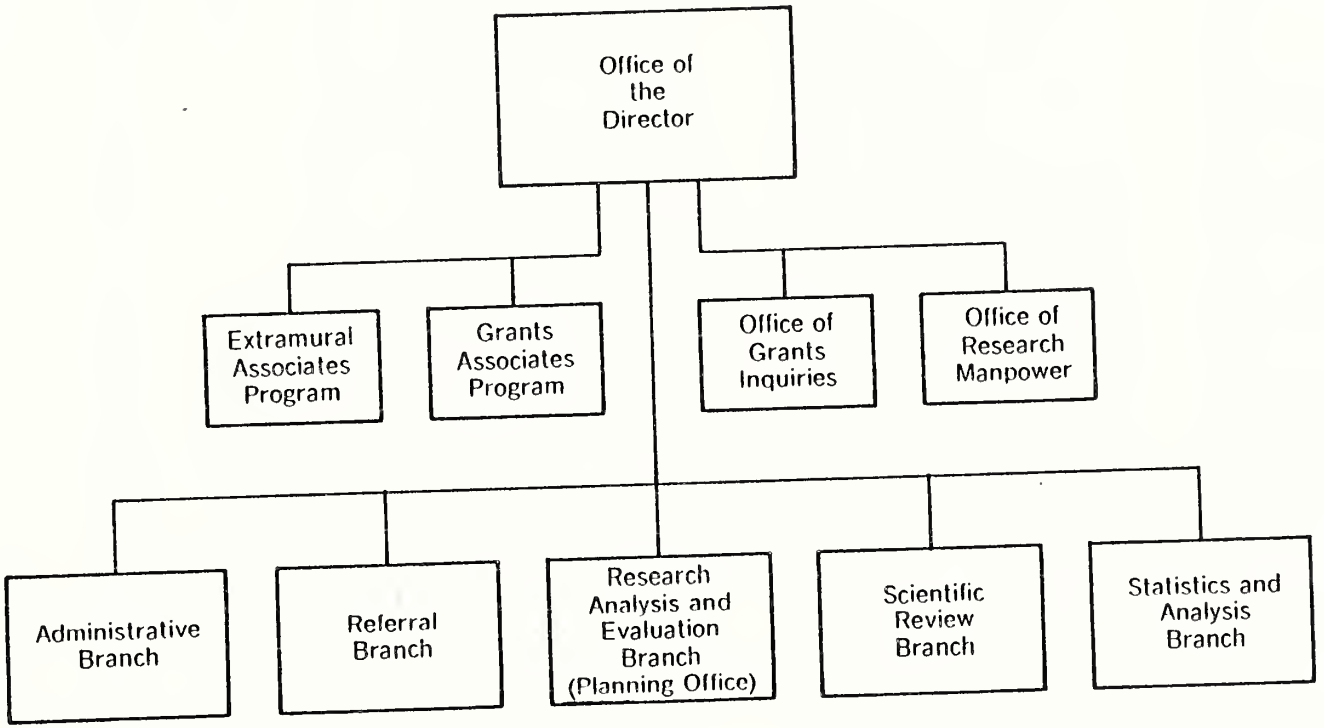
- Referral Branch: serves as a staff resource for central receipt, assignment, and referral to the awarding component of all applications for PHS research and training support;
- Scientific Review Branch: provides for peer review of applications for NIH research grants, research career development grants, and fellowships;
- Statistics and Analysis Branch: collects, stores, retrieves and analyzes management and program data needed in the management of the grant and award programs;
- Research Analysis and Evaluation Branch: reviews and analyzes the character and direction of research and training supported through NIH grants and the resources involved in providing such support; and
- Administrative Branch: provides financial management, office services, and similar services to the Division.

Besides the Office of the Director, the DRG's other offices are:

- Grants Associates Office: administers the NIH Grants Associates Program to train scientist administrators;
- Extramural Associates Office: administers the NIH Extramural Associates Program to facilitate communication between NIH and minority and women's academic institutions;
- Research Manpower Office: serves as a central information source on training programs for NIH and the outside scientific community; and
- Office of Grants Inquiries: responds to requests from Congress, the government, and the public on NIH extramural programs and the NIH grants award process.

The DRG implements these programs using its own staff. The resources of the outside scientific community are used to perform peer review activities. The DRG does not award grants for program implementation.

Exhibit DRG-1
DRG Organization



In addition to its principal missions, the DRG routinely performs the following administrative and managerial functions:

- Budget
- Personnel
- Information Dissemination
- Policy Development
- Planning
- Research on various aspects of the grant application and review process

2. OVERVIEW OF THE PLANNING COMPONENT

A. THE ROLE OF PLANNING

Planning in the DRG is oriented toward the smooth functioning of the Division's day-to-day operational requirements. Thus, the basic role of planning in the DRG is to assure that the Division is continually capable of handling its workload.

The DRG has several highly specialized and technical aspects to its mission, including the selection and management of computer hardware, the development and revision of software for various scientific and administrative data bases, and the maintenance of the peer review process through the designation and management of study sections. Planning for these and other activities is carried out in a decentralized manner, by DRG managers and staff members most familiar with the specialized requirements of these activities.

1. Objectives

Planning in the DRG has the following objectives:

- To enable the DRG to achieve its organizational objectives;
- To ensure the provision of the manpower and facilities required to handle research grant applications from the emerging fields of science and growing workload; and
- To achieve an efficient and effective operation.

2. Activities

The Division conducts the following planning activities:

- ADP/TC Plan
- DRG Program Review
- Hardware Planning
- Software Planning
- Budget Planning
- Evaluation Planning

The DRG Program Review is the equivalent of the planning process for the NIH Research Plan in research-oriented BID's. The review is carried out by the NIH Director. A document is prepared for the review, containing data on present activities as well as future projections of activities and budget requirements.

Hardware and software planning do not result in formal planning documents, but are performed continuously to make certain that the Division is prepared to respond to continuously-changing demands of the grant awards process as well as DRG's data base users.

B. KEY ACTORS IN THE DRG PLANNING PROCESSES

One of the Division's principal responsibilities is the management of the study sections, which are initial review groups (IRG's) with review responsibilities in specific scientific research areas. However, the Division does not have an advisory body or council which oversees or advises the Division on its activities and future directions.

Two trans-NIH committees which are indirectly important in planning DRG policy and activities are the Extramural Programs Management Committee (EPMC) and the Review Policy Committee (RPC). The EPMC consists of the directors of all the extramural programs of the BID's. Meeting three times a month, it continues to monitor all aspects of extramural program policy, making suggestions which can affect DRG policy and operations.

The RPC is composed primarily of extramural program directors or their representatives. The committee meets monthly to review matters of importance dealing with the peer review process, and thus also affects DRG plans and policies.

The Research and Analysis Branch (RAEB) which contains the planning office for the Division, is involved in all the major Division-wide planning processes, compiling and analyzing data for document development. The RAEB is entirely responsible for the DRG Evaluation Plan.

Two in-house committees have continuous responsibility for hardware and software planning, which are specialized planning functions not included within the scope of RAEB planning activities.

A "small group" of the top managers in the Division acts as a committee which drafts and revises the DRG Program Review, which is considered the key planning process for the Division.

The Special Assistant to the Director is responsible for compiling the DRG Annual Program Review, as well as other short-term and "crisis" planning activities.

3. THE PLANNING OFFICE

A. ORGANIZATION

The Division of Research Grants does not have a planning office per se. The Research Analysis and Evaluation Branch (RAEB), however, is the Divisions liaison with other planning offices and is responsible for evaluation planning. A Special Assistant to the Director is responsible for coordination of the Annual DRG Program Review.

In the RAEB, two staff members devote part of their efforts to Division planning: the planning officer and Branch Chief (GS-15) and a program analyst (GS-13). In addition, a GS-13 staff person in the Systems Planning Unit of the Statistics and Analysis Branch devotes full-time efforts to computer hardware and software planning.

DRG does not use contract assistance or other resources in performing its planning activities.

B. FUNCTIONS OF THE RAEB

As mentioned above, the RAEB is responsible for evaluation planning and operations planning. The DRG does not have research programs, and so no research planning is performed.

Other planning activities are the responsibilities of the following offices:

- Annual Program Review: Special Assistant to the Director and "small group" of DRG managers;
- ADP/TC Plan: Systems and Data Management Section of the Statistics and Analysis Branch;
- Budget Planning: Financial Management Section of the Administrative Branch; and
- Other Planning: All other planning is performed by the respective Office, branch, and/or Section Managers.

he RAEB performs several other activities in addition to planning:

- Program Analysis: examination of trends concerning various aspects of the grant application and award process;
- Evaluation; and
- Trans-NIH issues.

The Branch serves as a staff resource to the DRG and NIH directorates in the development and preparation of reports on various biomedical subjects, and in the performance of various tasks and special projects to aid in the administration of the NIH extramural programs. This is particularly true with regard to issues and subjects which involve activities by more than one of the BID's. Over the past several years, for example, the RAEB has performed analyses in such areas as the NIH support of research in the psychological and social sciences, physical sciences, and pharmacology, as well as on the uses of research animals, health services research, and clinical trials.

C. INTERRELATIONSHIPS BETWEEN THE RAEB AND OTHER NIH DIVISONS

The RAEB has extensive responsibilities for trans-NIH issues. RAEB staff are the DRG representatives for committees on clinical trials, OMAR, animal resources, prevention, behavior and health research, Federal agency chemical programs, and NIH reporting of research for NSF.

The RAEB frequently is involved with new issues arising in biomedical research, particularly in the data collection and analysis activities. For example, the recent Committee on Inadvertant Modification of the Stratosphere, prior to its formal structure, relied upon the RAEB for an inventory of NIH activities in related biomedical areas.

Most trans-NIH committees have a data subgroup, and the RAEB representative usually is involved in its activities.

In addition, the Branch performs many analyses involving trans-NIH aspects of the grant award and management processes. Such analyses, for example, might study trends in characteristics of principal investigators, in types of funded research, and other issues of interest to NIH management. Because the DRG operates the CRISP system for NIH, the needs of the BID's in using this system are of continuous concern to the Division. The DRG is responsible for preparing demonstration and outreach activities for the use of this system. In this regard, the monthly meetings of NIH planning officers are useful to determine data needs for the planning and analysis activities of all the BID's.

4. DESCRIPTION OF SPECIFIC PLANNING PROCESSES

The DRG conducts a variety of planning processes, some having to do with various Division activities and requirements which are unique within the NIH. These include:

- Annual Program Review for the NIH Research Plan
- Evaluation Plan
- ADP/TC Plan
- Hardware Planning
- Software Planning
- Budget Planning

The Division does not require nor have a long-term or strategic planning process. Since the DRG does not maintain its own research programs, and has well-defined duties within the NIH, there is no real need for strategic planning. However, some aspects of Division programs do require long-range planning. For example, the processing of grants, preparation and distribution of summary statements, and similar activities require projections from current data to predict future trends. Some budget planning also projects needs beyond one year in the future. However, these are not regarded as true planning activities, and are not included among the responsibilities of the planning officer.

A. ANNUAL PROGRAM REVIEW FOR THE NIH RESEARCH PLAN

The DRG prepares a program review document for the annual meetings with the NIH Director. The Division does not consider this to be a major planning document, and it is not a responsibility of the Planning Officer.

The Program Review is prepared under the guidance of the "small staff," a group consisting of the Director, Deputy Director, Executive Officer, and others as needed. For the program review, the planning officer is included in the "small staff," as are other branch chiefs. However, the overall responsibility for the preparation of the program review document belongs to the Special Assistant to the Director.

The process used to prepare the program review is graphically depicted in Exhibit 2.

The small staff meets in order to discuss the overall presentation and to prepare an agenda for the meeting with the NIH Director. At this time, the topics to be included in the meeting are determined. Topics are selected according to current activities and operations, accomplishments over the past year, and problem areas which may be addressed in the coming year. Usually, analytical work of the RAEB and the planning officer are included to describe operations and make projections based on past data. For example, the 1983 program review session had the following topics:

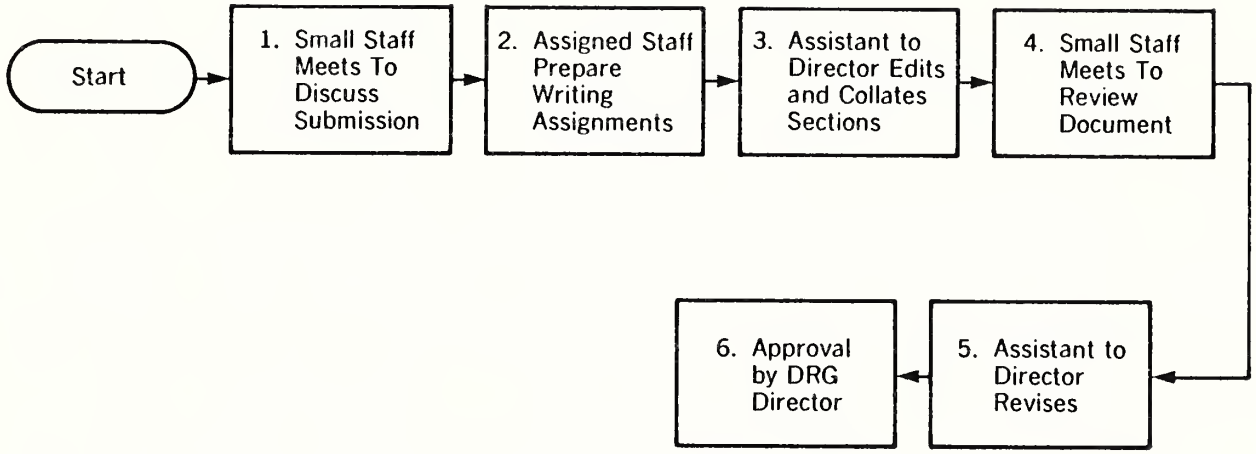
- Trends in the Peer Review System
- Workload for DRG
- Scientific Review and Evaluation Awards
- Clinical Research Applications
- Overview of DRG Accomplishments and Plans for the Coming Year
- Special Initiatives
- Number of Applications Versus Number of DRG Staff
- Personnel and Budget Resources and Needs

The responsibility of the Special Assistant to the Director is to coordinate the assignments and to edit the entire document to insure consistency and avoid duplication. The Special Assistant edits in close consultation with the small staff members, in order that the document be sensitive to all the technical and administrative requirements of the Branches.

After completion of the draft, the small staff meets again to review the document and suggest revisions. The revisions are completed by the Special Assistant. The final product is reviewed by the DRG Director before submission, and he gives the document its final approval.

The program review document is not distributed either in the DRG or in the scientific community. It is seen specifically as a vehicle by which the NIH Director can be apprised of the status of the Division.

Exhibit DRG-2
DRG Annual Program Review


Start
1. Small Staff Meets To Discuss Submission
2. Assigned Staff Prepare Writing Assignments
3. Assistant to Director Edits and Collates Sections
4. Small Staff Meets To Review Document
5. Assistant to Director Revises
6. Approval by DRG Director

The Program Review document does have an additional use as general background material for budget development, estimation of workloads and personnel requirements, operational management, and similar administrative/management activities. However, this use is more the availability of data and projections in a reference document, than as a plan with implementable goals.

B. EVALUATION PLAN

The DRG Evaluation Plan is prepared by the planning officer. The Division currently has two evaluation projects, studying various aspects of research careers by Principal Investigators (PI's) and sub-PI's.

The procedure used to develop the plan is presented in Exhibit 3.

The majority of the effort for the Evaluation Plan is performed within the RAEB. When guidance for the Evaluation Plan is received from OD/NIH, it is distributed to the Branch Chief by the Planning Officer. Branches are requested to prepare project descriptions for potential evaluation projects. In addition, the RAEB staff also prepares descriptions in areas where the staff believes there is a need for evaluation. In the recent past, most of the request for evaluation funds have originated in RAEB.

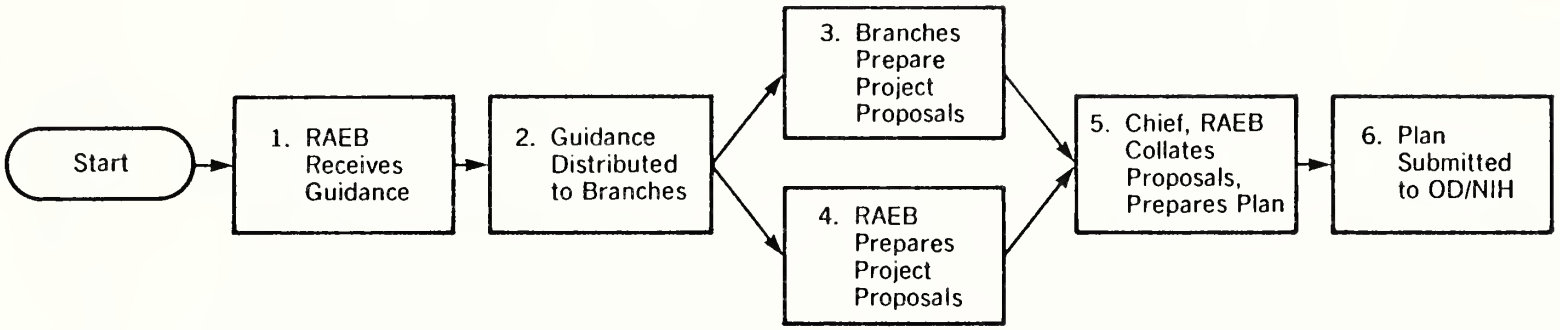
The project descriptions are collated, edited, and submitted to OD/NIH. There is no attempt to set priorities or otherwise structure the submission. The Division once set up a committee to review projects for the Evaluation Plan, but the results of the effort were so sparse, in terms of projects approved and funded, that the committee was disbanded.

The Plan goes directly to OD/NIH, and is not reviewed by the DRG Director.

C. ADP/TC PLAN

The ADP/TC Plan is prepared by a program analyst in the Systems and Data Management Section in the Statistics and Analysis Branch. The Plan is considered an administrative requirement and no planning activity or specific process is connected with its completion.

Exhibit DRG-3
DRG Evaluation Plan


Start
1. RAEB Receives Guidance
2. Guidance Distributed to Branches
3. Branches Prepare Project Proposals
4. RAEB Prepares Project Proposals
5. Chief, RAEB Collates Proposals, Prepares Plan
6. Plan Submitted to OD/NIH

D. HARDWARE PLANNING

Hardware Planning is required in the DRG because of the continuous need to assure that the extensive automated data processing requirements of DRG are fully met. The DRG maintains a committee generally known as the Technological Needs Committee. The Committee is made up of the following personnel:

- Associate Director for Scientific Review
- Chief of the Statistics and Analysis Branch
- Chief, Systems Planning Unit
- One or more Section Chiefs of the Scientific Review Branch
- Referral Officers.

The committee meets on an as-needed basis to consider changes in the hardware needs of the DRG. No formal document or report is prepared by this committee, but minutes are prepared and distributed to DRG managers.

All hardware requirements, including word processing equipment, are considered by this committee. Recently, the committee has dealt with such topics as the possiblity of automating summary statement files, and the merits of changing word processing equipment.

E. SOFTWARE PLANNING

There is a continuous need in DRG to revise and update computer software, particularly for the CRISP system. In the Systems and Data Management Unit, there is a software planning group which meets practically on a daily basis to examine software needs. The software planning group continuously examines Division information needs, programming problems, and available programming resources. The group determines priorities for work, and also can make suggestions to the Director and Branch Chiefs for projects which may require special resources or other unusual requirements.

Like the Hardware Planning activity, the software planning group prepares minutes which are made available to the Division management. Because of the large

and growing internal and external computer needs of the Division, the software planning group is viewed as critical to the maintenance of useful systems. The CRISP (Computer Retrieval of Information on Scientific Projects) system has, for example, been reprogrammed several times in order to make it more efficient in retrieval time and easier to use. The software planning committee permits the division to accomplish such changes on a rational basis, and in keeping with priorities and needs.

F. BUDGET PLANNING

Budget planning is carried out by the Division Executive Officer and Administrative Officer. Because of the nature of the mission of the Division, it is not necessary for the Planning Officer to interact closely with the budget process. The budget responds to independent and predictable requirements regarding expenditures for operations, and the planning and budgeting processes thus can operate somewhat independently. The budget does take into account personnel and workload projections, to which the RAEB contributes through its analysis activities.

5. BARRIERS TO AND OUTCOMES OF PLANNING

A. BARRIERS TO PLANNING

Two barriers to planning were identified. The first dealt with the uncertainty of the budget system. The focus here was not so much on the budget planning process as on the inability to predict exact budget sizes due to the entire Federal budget process. This inability was viewed as a hindrance to the effectiveness of planning, since many long-range projects must be postponed or altered due to changes in the budget allocations in the course of the year.

The second barrier to planning, particular in the DRG, is the unpredictability of the entire research grant process at the NIH. Since the Division is responsible for the assignment of grant applications among review groups and Institutes, it must respond almost immediately to changes in interests of the research community. For example, unanticipated sudden rises in the number of research grant applications, or changes in the number of grants in a specific research area, may put severe strains on the general administration of the system, or on the resources of a particular review group in the newly-popular research area. Similarly, changes in user patterns for DRG computer systems are largely unpredictable.

As a result of its mission of service to the research community, it is sometimes impossible for planning at DRG to anticipate changes in the activities of that community. The RAEB can anticipate some trends through the analysis of data, and this analysis can be used for planning purposes. However, many changes of direction occur with little warning, and thus lessen the value of planning which is based on even relatively recent data.

B. OUTCOMES OF PLANNING

The outcomes of planning in the DRG are closely allied to the unique nature of the Division's mission. The Division does not have a research program which can be affected by a planning process. Nor does the Division mission change as a result of planning. However, its information systems and its grant review process must be highly responsive to the research community, and so planning

must take into account the changes that occur in the pattern of system user requests and of grant applications. Thus, planning becomes very important in projecting changes that may affect ongoing operations. It is true that planning is weakened by the fact that all these changes cannot be projected. However, planning often is capable of projecting these changes. For example, the need for new initial review groups, or increases in the work load involved in the preparation of grant summary statements, are examples of areas where DRG program operations may be affected by planning.

In this regard, planning is inseparable from resarch analysis and evaluation, since plans depend upon the trends evident through the analysis of current and recent data. Thus the location of the planning function within the RAEB is particularly useful, since this type of planning is directly related to data analysis.

A similar outcome of planning is noticable in the areas of resource allocation. Expansion and contraction of the coverage of DRG management information systems has resulted from the need to reduce resources in this area while still responding to user needs. Changes have been made so as to respond to use patterns of the systems as revealed through the analysis of recent data on user needs. Thus, some system components have been dropped or severely curtailed, and others expanded, based on the relative levels of use as revealed through this analysis.

The influence of planning upon the administrative management of DRG is viewed as indirect and "program oriented." The organization of the Division periodically changes to better reflect current activities and responsibilities, which may change as a result of planning and analysis.

6. SUMMARY AND OBSERVATIONS

Planning in the Division of Research Grants is closely related to research analysis, and the Planning Officer is also the Chief of the Research Analysis and Evaluation Branch. The basic mission of the Division is to support the NIH extramural research and training programs. As such, it must respond to the research directions of the scientific community by being able to refer grant applications to appropriate review groups and, eventually, to the appropriate BID's. It furthermore must collect and disseminate information on grants for the government as well as the scientific community. Planning is useful in estimating the nature of trends in the grant application proccess and in the use of information systems, basing these estimations of analysis of recent data.

In addition to the overall DRG mission, it must support highly technical and specialized automated information systems which require almost constant planning to maintain efficiency. For these systems, the Division maintains hardware and software planning groups which continuously monitor system needs and commit resources so as to assure the maximum responsiveness to users within resource limits.

The DRG presentation for the NIH Research Plan is viewed more as a program review than the presentation of a research agenda. The Program Review is prepared through a "small group" of Division managers which meets regularly. While projects for the coming year are a part of this review, they are based on the analysis of recent administrative data.

It is through this analysis of recent trends in the grant review process, and of information use, that the bulk of DRG planning is performed. Recent analyses have determined such diverse requirements as the need for additional review groups in certain research areas, changes in the structure and detail of computerized information systems, and changes in workloads for summary statement preparation. Thus, planning most clearly has an outcome through the changes in resource allocations and in organization resulting from recent trends in the Division's workload.

7. SOURCES OF INFORMATION

Data were gathered from written source, including published documents as well as internal reports and memoranda, and from personal interviews with key DRG staff.

Personal Interviews:

Mr. John James, Chief, Research Analysis and Evaluation Branch, DRG.

Published Documents:

Divison of Research Grants, "DRG Annual Report -- Fiscal Year 1982," mimeo report, no date.

Division of Research Grants, "Program Review Session," mimeo report, March 8, 1983.

National Institutes of Health, 1983 NIH Almanac, NIH Publication No. 83-5, March, 1983.

APPENDIX 1

CONTENTS AND AGENDA FOR DRG ANNUAL PROGRAM REVIEW

DIVISION OF RESEARCH GRANTS

PROGRAM REVIEW SESSION

BRIEFING BOOK

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Trends in the Peer Review System	
Workload for DRG	
Scientific Review and Evaluation Awards	
Clinical Research Applications	
Overview of DRG Accomplishments in 1982 and Plans for Coming Year .	
Special Initiatives	
Number of Applications versus Number of DRG Staff	
Personnel and Budget Resources and Needs	

AGENDA

PROGRAM REVIEW SESSION

DIVISION OF RESEARCH GRANTS

March 8, 1983

10:00 - 11:00 a.m.

Shannon Building, Room 114

I. Current Issues of Concern

A. Trends in the Peer Review System

B. Peer Review Workload

C. Scientific Review and Evaluation Awards (SREA)

D. Dissatisfactions Regarding Study Section Members' Qualifications

E. Clinical Research Applications

II. Accomplishments and Resource Problems

A. Recurrent Activities

B. Special Activities

C. Available Resources

D. Required Resources

SUMMARY FACTUAL DESCRIPTION OF THE PLANNING PROCESSES OF THE DIVISION OF RESEARCH SERVICES

"STUDY OF THE PLANNING PROCESSES AT NIH"

NIH Contract Number 1-OD-2-2122

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1. THE DIVISION OF RESEARCH SERVICES: ITS MISSION AND ORGANIZATION

The Division of Research Services (DRS) is one of six research and support divisions which, along with four Bureaus and eight Institutes, make up the National Institutes of Health. The Division was established in 1956, under the administrative authority of the Director, NIH.

A. MISSION

The Division's Mission is viewed (by the planning staff) as the responsibility to provide supporting services for the intramural scientist. Specifically, the DRS --

- Plans and conducts a centralized program of scientific, engineering, and technical services in support of NIH activities;
- Collaborates with research scientists in providing support during the research planning stage, in carrying out the research project, and in presentation of findings; and
- Furnishes services and specialized assistance in (1) biomedical engineering and instrumentation design and development, (2) research animal production, care and procurement; and anifmal disease identification and control, (3) biomedical library and translation services, and (4) medical arts and photography.

Through this mission, the Division is capable of assisting the NIH intramural scientist in all phases of research, from conducting literature reviews, to providing assistance in producing and/or procuring research animals and equipment, to providing biomedical photography and artwork for final publication. This flow of services is reflected in the Division's programs.

B. PROGRAMS

To fulfill their mission, the DRS maintains a program structure that is both specialty-specific and flexible to facilitate interaction and collaboration among branches. The branches are:

- The Biomedical Engineering and Instrumentation Branch

  (1) Provides professional engineering services, fabrication, and major modifications of unique and noncommercial instruments and instrumentation systems needed in clinical and laboratory biomedical research, and maintenance, repair, and minor modifications of scientific equipment; (2) operates a rental program which provides scientific equipment to NIH investigators; and (3) obtains and disseminates information developments and improved technological methodologies in the biomedical engineering.

- The Medical Arts and Photography Branch

  (1) provides: (a) consultation and production services to visually communicate program efforts and research results; (b) knowledge, skills, and techniques in medical art, fine and applied arts, and still and motion picture photography; (2) investigates, develops, and applies new techniques in the photographic and graphic arts.

- The Veterinary Resources Branch

  Provides professional and technical support services to the intramural research programs of the National Institutes of Health. Branch activities include: (1) production of genetically and microbiologically characterized research animals; (2) procurement, conditioning, and issuance of animals obtained from outside sources; (3) animal surgery, x-ray, and recovery; (4) housing and professional and technical services related to research animal holding; (5) animal disease diagnosis and control; (6) consultative services on animal health, nutrition, behavior, reproduction, genetics, care, husbandry; and (7) maintenance of an internationally recognized laboratory animal genetic resource. The Veterinary Resources Branch also provides administrative support to the Interagency Primate Steering Committee and plays a liaison role with national and international organizations on policies and procedures relative to the care and use of animals in biomedical research.

- The Library Branch

  (1) Interprets library needs to support the NIH research program; (2) acquires, organizes, maintains, and services a collection of library materials to meet these needs; (3) provides professional assistance to NIH personnel in optimum utilization of library resources; (4) provides translating, reference, and bibliographic services; including formulation of requests for computerized searches; (5) provides leadership and consultative services in library-type areas including information storage and retrieval.

The DRS implements these programs through (1) using NIH and individual BID Management Fund appropriations and (2) charging each BID, on a fee-for-service basis, for Services and Supply Fund activities. Contractors and vendors are used by all branches for a variety of services and supplies.

C. ORGANIZATION

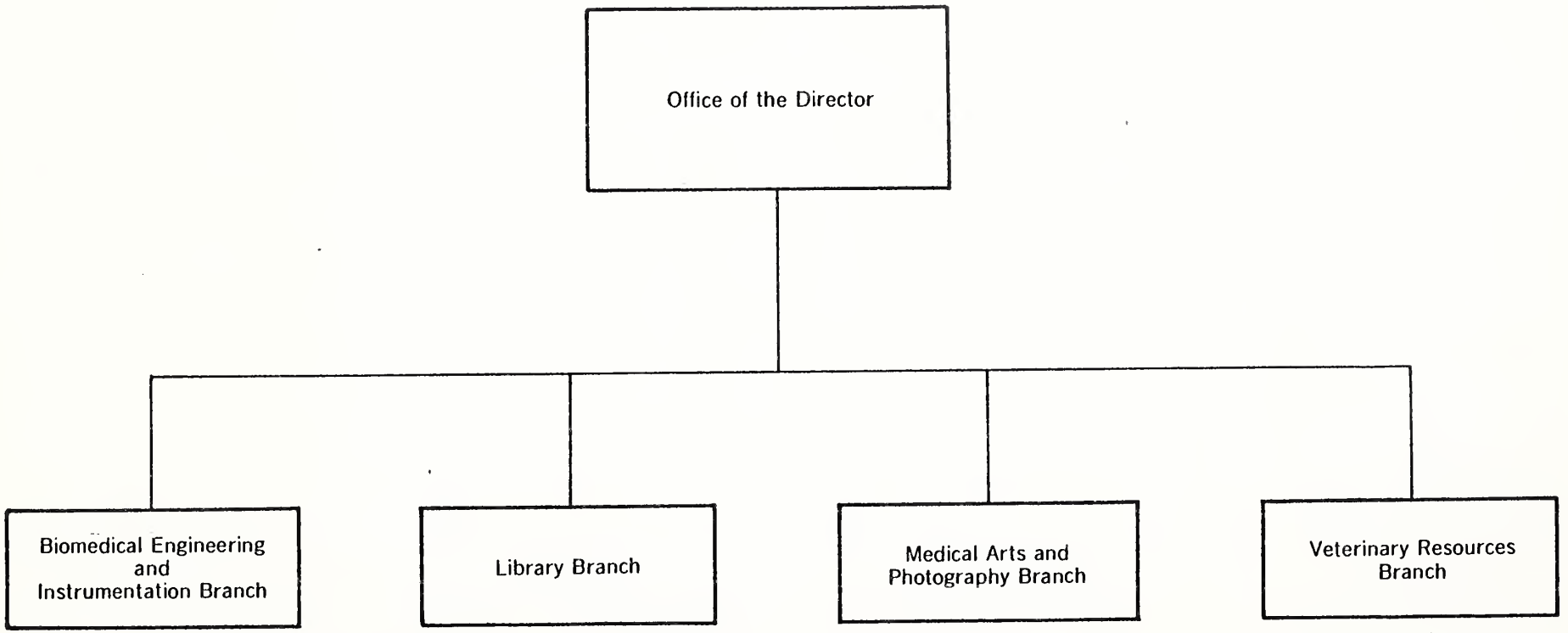
The Division's organizational structure allows a full range of administrative and management functions to be conducted within the Office of the Director, including -

- Planning and Program Analysis
- Evaluation
- Legislation
- Management and Systems Analysis
- Personnel Management
- Budgeting
- EEO Responsibilities

Each individual who has primary responsibility for a functional area (e.g., personnel) also has some responsibility, or at least some input, in planning. The degree of co-location among these individuals supports their multiple functions.

The DRS is composed of five offices (administrative, budget, management analysis, personnel, and equal oppportunity) in addition to the four branches. The organizational structure of the DRS is functional, with each office and program area represented as distinct operating line units under the Office of the Director. All five offices as well as all four branches are represented in the planning group. Because each office is a part of the DRS planning group, the functional description of these offices is presented in Section 3 of this report. Exhibit 1 illustrates the organization of the DRS.

Exhibit DRS-1
Organization of the DRS



2. OVERVIEW OF THE DRS PLANNING COMPONENT

A. THE ROLE OF PLANNING

The DRS definition of planning states that planning is the analysis of relevant information from the present and the past and an assessment of probable future developments so that the Planning Group may determine a course of action which will enable the DRS to satisfy the needs of the NIH intramural research community and meet stated objectives.

Overall, the DRS Planning Officer summarizes the objectives of planning as attempting to:

- Forecast needs;
- Provide information necessary to support selection among competing options; and
- Assist in building consensus.

In collaboration with the NIH intramural research staff, the DRS planning staff endeavors to forecast the research support services to be provided by the DRS on a fiscal year basis. In response to the forecast, production goals are established utilizing the most efficient and economical means to accomplish the quality and quantity of services and products required by the NIH investigator.

Work assignments are determined based on these production goals. In this way, planning is used as an operational tool used to run the Division. Accordingly, the budget process "drives" the planning processes. Planning is based on budgetary realities and progress toward achieving planning objectives is monitored by current budget figures. Conversely, budget modifications are occasionally made to accommodate necessary expenditures identified through planning. This interdependence among functions and the use of planning as an operational tool are illustrated by the composition of the core planning group. The Budget Officer also has primary responsibilities for planning. The Management Analysis Officer not only provides data necessary for planning, but also has primary responsibility for evaluation. The Executive Officer provides the broad perspective and expertise necessary to execute the total planning process.

B. KEY ACTORS

The DRS has developed several committees which act in an advisory capacity to improve and enhance the products and services supplied. There is no true equivalent "Advisory Council" such as those serving the Bureaus and Institutes, which have grant-funding mechanisms, and the DRS Advisory Committees do not get involved in setting priorities or policy. Nevertheless, all of the standing and ad hoc committees are active groups which participate in planning by maintaining contact with the scientific community, suggesting initiatives, and responding to requests for review of planning related documents. The steering committees serving the DRS include the following:

- Interagency Primate Steering Committee (IPSC)

  The DRS has lead responsibility for this interagency committee which was established by the OASH, DHHS (with the NIH as the lead agency) to insure the continued supply of non-human primates for NIH and other government agencies' research needs. This action was taken in response to shortages of a number of primate species vital to biomedical research activities. The committee was given the responsibility for planning a natural primate program to assure an adequate supply of primates for health activities in the United States.

- Small Animal Advisory Committee

  This committee is being formed to advise DRS management on the types of animals that should be produced for NIH research needs. The committee includes NIH users as well as managers from the Veterinary Resources Branch.

- Library Advisory Committee (LAC)

  As the advisory body to the Scientific Director for Intramural Research as well as to the DRS, this committee is the primary source for feedback from library users. In this way, the LAC provides information on service shortcomings and makes suggestions for improvement. Subcommittees of the LAC are established to make recommendations concerning policy on issues such as material selection and retention, form of material retained, and hours of service.

- The Library Training Committee (LTC)

  This committee was started in June 1982, for the purpose of preparing and helping users for all changes coming in the NIH Library. Two immediate objectives are: (1) to prepare library staff users for changes due to computerization and the construction preceeding it, and (2) to prepare users for increased use of microfilm.

- Ad Hoc Committees

  there are several committees which are formed in all Branches to provide feedback to the Branch Chiefs in relation to services supplied, prices charged, and for contract and project reviews. This process is another important mechanism enhancing the DRS' ability to plan and develop activities in support of total NIH research requirements.

3. THE DRS PLANNING GROUP

A. ORGRANIZATION AND FUNCTIONS

The "planning office" of the DRS is not a structurally distinct entity; three individuals (the Executive, Management Analysis, and Budget Officers) have primary responsibility for planning-related activities. These three individuals will be referred to in this document as the "core" planning group. However, a total of 15 individuals (including the Chiefs and the Administrative Officers from each of the four Branches, the Personnel Officer, the EEO Officer, the Administrative Officer, the Budget Officer, the Management Analysis Officer, the Executive Officer, and the Director, DRS) are actively involved in planning.

Because all units of the DRS are represented in the planning group, the integration and coordination of planning functions, as well as the collaborative work required to conduct planning, are greatly facilitated.

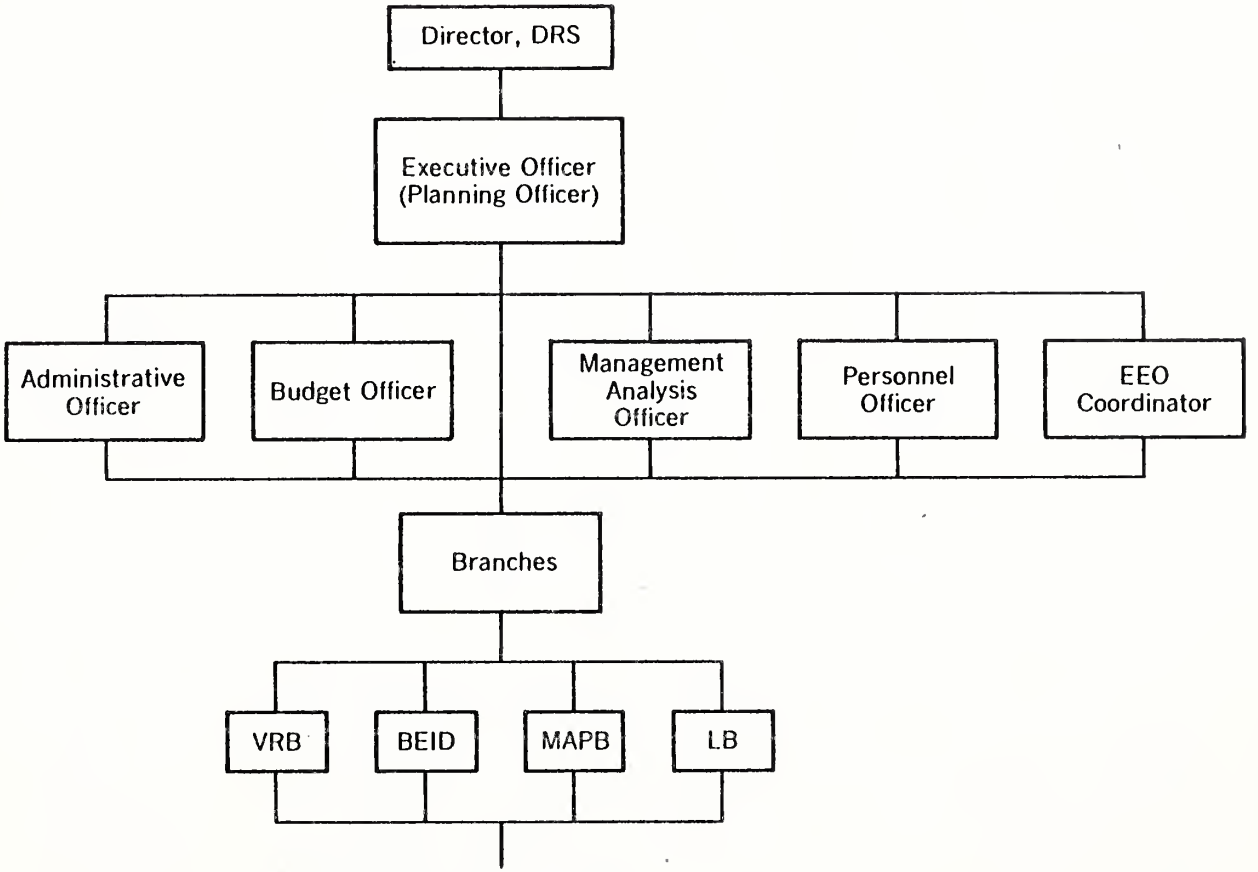
Exhibit 2 illustrates the organization of the DRS with specific respect to planning functions. A brief description of each office follows.

The Administrative Office, OD is required to coordinate the Divisions' responses to various administrative activities at the NIH. Each Branch is requested to provide specific information for the completion of the following self-explanatory plans:

- Procurement Plan
- Travel Plan
- Foreign Travel Plan
- EPMS and MP Plans
- Conference Management Plan

The amounts projected (for procurement, travel, conferences, etc.) at the beginning of the fiscal year are monitored by this office to insure that the DRS does not spend more than planned and that activities are accomplished in a timely manner.

Exhibit DRS-2
DRS' Planning Organization



The Budget Office plays a major role in planning and monitoring activities at the DRS. The Division attempts to harmonize all the planning functions through the use of the budget. While many managers believe the budget is a control technique, it is used at the DRS as a planning tool as well because it provides a basis for action. Expected results can be expressed in numerical terms; income and expenses can be projected; man hours to be worked in the current period can be calculated and units of production can be determined.

The following plans are the responsibility of the Budget Office:

- Annual Research Plan (or Forward/Program Plan)
- Service and Supply Fund Plans
- Full-Time Equivalent (FTE) Utilization Plan

The Management Analysis Office (MAO) is responsible for performing management studies and coordinating the utilization of Automated Data Processing (ADP) throughout the Division. It is also responsible for providing reports on the output produced by each activity and on the productivity within the Division. The MAO is generally used to provide support data necessary for developing the short-term operational plans. In addition, systems analysis and program analysis responsibilities lie within this office.

The following plans are prepared or coordinated through the MAO:

- Projected Production Plan
- Output Trend Report
- Service and Supply Fund Rate Plans and Profit and Loss Statements
- Evaluation Plan

The Personnel Office is responsible for coordinating and obtaining the Division's manpower requirements. This involves entering personnel data into various systems; developing and monitoring a training program; and insuring that each job is properly classified and graded for the work to be performed. The following are specific plans this office develops:

- CO STEP Plan
- Summer Employment Plan
- Annual Promotion Plan

The Equal Employment Opportunity Office is responsible for coordinating the Division's compliancce with various Affirmative Action Plans developed at both the PHS, NIH, and at the DRS level. In addition, the office is responsible for counseling employees and managers when disputes or problems arise. This office is involved with Affirmative Action Planning.

4. DESCRIPTION OF SPECIFIC PLANNING PROCESSES

The umbrella for all planning processes within the DRS is an operational/strategic planning process. This is not a formal process that results in a planning document; rather it is the overall mechanism that allows the specific planning processes to operate and enables the DRS to fulfill its mission. Exhibit 3, developed by the DRS planning group, illustrates how planning typically operates within the DRS.

This is represented on an operational level by the Annual Internal Program Review process. It is this process that provides the foundation for all other planning processes, including the Annual Research Plan.

The descriptions which follow Exhibit 3 provide a step-by-step account of the major planning activities of the DRS.

A. INTERNAL PROGRAM REVIEW (IPR)/STRATEGIC PLANNING

The internal review of DRS programs involves all of the other planning processes within the Division. Program-specific issues in the research, evaluation, legislative, ADP, and other planning processes are reviewed and discussed as part of the IPR process. The Core Planning Group, rather than a single office, is responsible for coordinating the Internal Program Review.

The IPR was designed to be a cyclical annual process to prepare for the Annual Research (Forward) Plan. The DRS (OD) determined that it was appropriate to hold internal reviews prior to meeting with the Director, NIH in order to develop a coordinated approach to managing its diverse activities. In addition, this process includes budgetary and staffing considerations.

An overview of this process appears as Exhibit 4. The following step-by-step discussion elaborates this process.

Exhibit DRS-3
Illustration of Planning at the DRS on an Operational Level

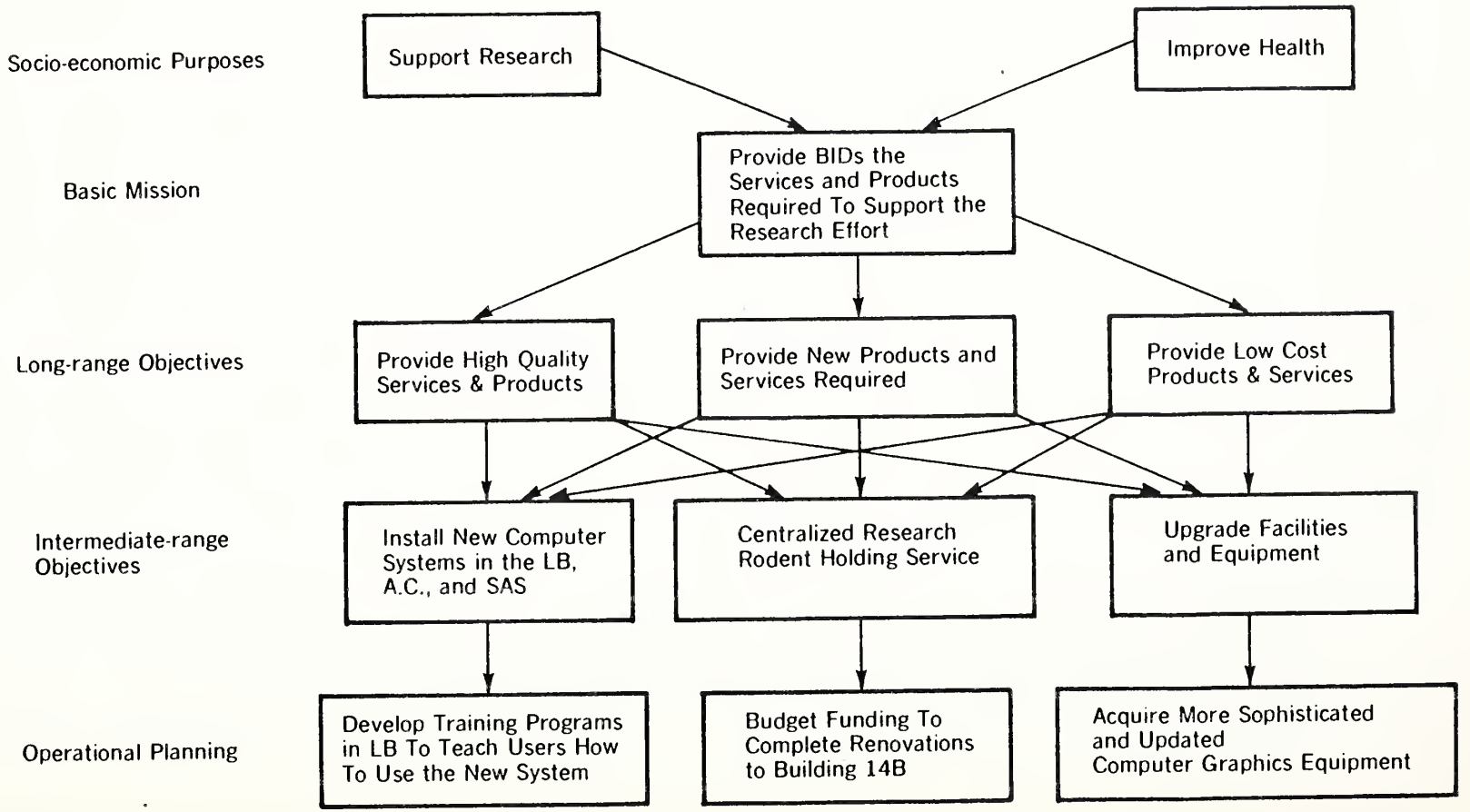
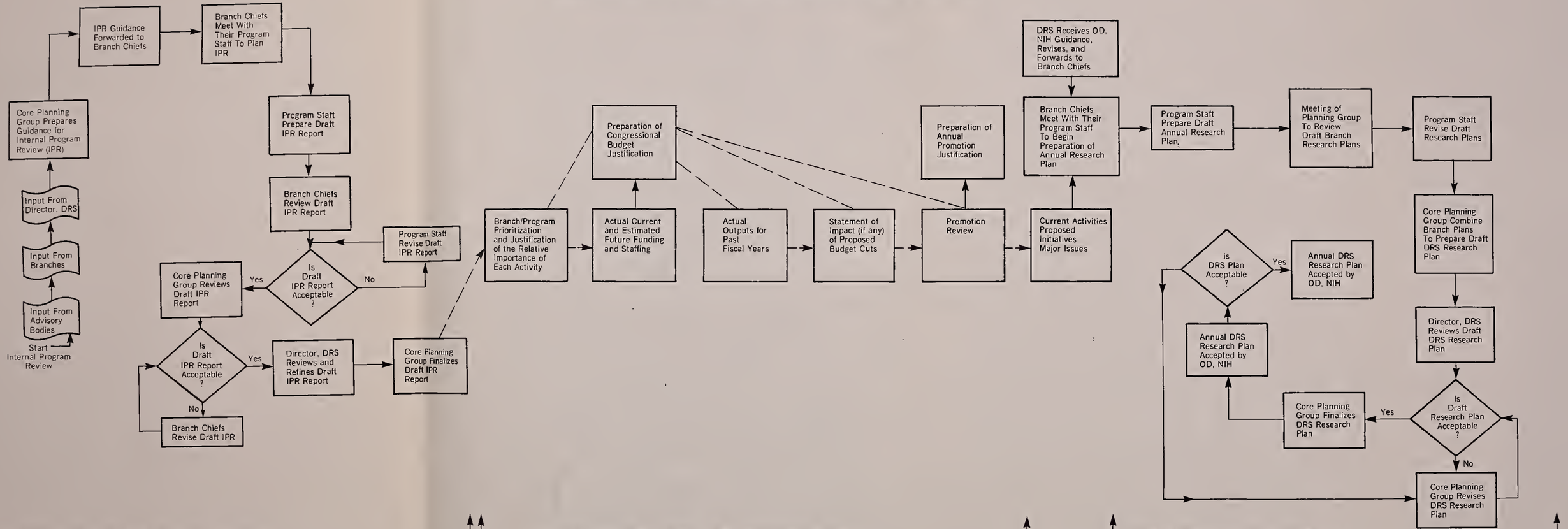

Socio-economic Purposes
Support Research
Improve Health
Basic Mission
Provide BIDs the Services and Products Required To Support the Research Effort
Long-range Objectives
Provide High Quality Services & Products
Provide New Products and Services Required
Provide Low Cost Products & Services
Intermediate-range Objectives
Install New Computer Systems in the LB, A.C., and SAS
Centralized Research Rodent Holding Service
Upgrade Facilities and Equipment
Operational Planning
Develop Training Programs in LB To Teach Users How To Use the New System
Budget Funding To Complete Renovations to Building 14B
Acquire More Sophisticated and Updated Computer Graphics Equipment

Exhibit DRS 4
Overall Internal Program Review and Research (Forward) Planning Processes of the DRS


Start Internal Program Review
Input From Advisory Bodies
Input From Branches
Input From Director, DRS
Core Planning Group Prepares Guidance for Internal Program Review (IPR)
IPR Guidance Forwarded to Branch Chiefs
Branch Chiefs Meet With Their Program Staff To Plan IPR
Program Staff Prepare Draft IPR Report
Branch Chiefs Review Draft IPR Report
Program Staff Revise Draft IPR Report
Is Draft IPR Report Acceptable ?
Yes
No
Core Planning Group Reviews Draft IPR Report
Is Draft IPR Report Acceptable ?
Yes
No
Director, DRS Reviews and Refines Draft IPR Report
Core Planning Group Finalizes Draft IPR Report
Branch Chiefs Revise Draft IPR
Internal Program Review Development Processes
(Strategic Planning)
Branch/Program Prioritization and Justification of the Relative Importance of Each Activity
Preparation of Congressional Budget Justification
Actual Current and Estimated Future Funding and Staffing
Actual Outputs for Past Fiscal Years
Statement of Impact (if any) of Proposed Budget Cuts
Preparation of Annual Promotion Justification
Promotion Review
Current Activities Proposed Initiatives Major Issues
Results of Internal Program Review Development Process
DRS Receives OD, NIH Guidance, Revises, and Forwards to Branch Chiefs
Branch Chiefs Meet With Their Program Staff To Begin Preparation of Annual Research Plan
Program Staff Prepare Draft Annual Research Plan
Meeting of Planning Group To Review Draft Branch Research Plans
Program Staff Revise Draft Research Plans
Core Planning Group Combine Branch Plans To Prepare Draft DRS Research Plan
Director, DRS Reviews Draft DRS Research Plan
Is Draft Research Plan Acceptable ?
Yes
No
Core Planning Group Revises DRS Research Plan
Core Planning Group Finalizes DRS Research Plan
Annual DRS Research Plan Accepted by OD, NIH
Is DRS Plan Acceptable ?
Yes
Annual DRS Research Plan Accepted by OD, NIH
Annual Research (Forward) Planning Process

To begin this process, guidance, developed by the core planning group (i.e., the Executive, Budget, and Management Analysis Officers) is forwarded to the Branch Chiefs. (A copy of this guidance is included as Appendix 1.) The guidance asks the Branch Chiefs to develop an internal planning description and to discuss "external" planning considerations (for OD, NIH review).

The guidance for internal planning requires that the branch "rank itself" (i.e., to designate and justify a priority, for itself, relative to the other branches). Budgetary considerations are also requested in this section. The branches are asked to provide the actual budget for the past fiscal year and a proposed budget for the next two fiscal years. This section of the IPR includes actual current and estimated future staffing requirements and output projections. In some years, such as this year, the Branch Chiefs are asked to plan for a reduction of funds. The Branch Chiefs are also asked to discuss the expected impact of budget reductions on each activity and to review all proposed promotions.

The second section of the IPR request asks the Branch Chiefs to prepare a status of current activities, proposed activities, and important issues for the planning meeting with the OD, NIH. This information is ultimately used for the Annual Research (Forward) Plan submission.

The Executive Officer (through the core planning group) forwards this guidance to the Branch Chiefs after making any necessary modifications. The Branch Chiefs then meet with their respective Section Heads and other appropriate program staff to discuss the guidance and begin preparation of the IPR document.

Subsequently, the program staff and section heads prepare the draft IPR document. Contact among the program staff, section heads, and Branch Chiefs is informal during most of this development stage. The Branches may call upon their advisory bodies for input at this point and there is usually contact between the Branch Chiefs and the Core Planning group to clarify points and/or to check budget or other data, for example.

Following completion of the draft IPR Reports, the Branch Chiefs conduct their review This may involve meetings with their section heads and program staff to discuss revisions, or it may be an individual exercise on the part of the Branch Chief. If modifications are necessary, the program staffs revise the IPR report and resubmit the document to their Branch Chiefs.

The Branch Chief then submits the draft IPR report to the Core Planning Group for review. The draft reports are circulated to all planning group members who then meet to discuss the draft IPR reports. Technical and other issues of concern are discussed again at this time.

If revisions are necessary, the Branch Chiefs work with their program staffs to make the necessary modifications and resubmit the IPR reports to the Core Planning Group. The Core Planning Group then combines the individual Branch IPR Reports and "finalizes" the IPR document.

The final draft IPR document is then submitted to Director, DRS for Review. The Director discusses any necessary revisions during a meeting with the Core Planning Group and Branch Chiefs. The Core Planning Group revises and finalizes the IPR document.

The Internal Program Review is the primary mechanism for prioritization of program activities within the DRS. Before revealing the prioritization developed by the Branch Chiefs, the Budget Officer requests a similar prioritization from the Director, DRS. Then, the Director compares the prioritizations and makes a final decision during his/her review of the draft IPR.

This ongoing planning process provides the framework for the other planning processes (as illustrated in Exhibit 4) and is updated annually. There is no external requirement for the IPR process; it is used as the operational tool for the Division.

B. ANNUAL RESEARCH (FORWARD) PLAN

The Budget Office coordinates the DRS forward planning process which is used to

present and justify budgets, potential legislative initiatives, and evaluation plans. 10 steps in this process are described below and illustrated in Exhibit 4.

- Step 1a: Receipt of Planning Guidance. Guidance from the OD, NIH is sent to the Director, DRS, who then forwards it to the Executive Officer. The Executive, Management Analysis, and Budget Officers then refine the guidance and send it to the Branch Chiefs.

- Step 1b: Receipt of Budget Guidance. At approximately the same time, the DRS is asked to prepare their budget justification. This task then -- through the budget-development portion of the Internal Program Review -- is incorporated as part of the Annual Research Plan Process.

- Step 2: Program Staff Review Guidance. The Branch Chiefs meet with the Section Chiefs and program staff of their branch to discuss the planning guidance to prepare their section reports. Any new initiatives, issues of concern, substantive technical issues, and/or procedural considerations are discussed and clarified at this point.

- Step 3: Preparation of Draft Branch Plans. The Branches then prepare a draft plan for review and modification by the Planning Group. This draft includes the proposed initiatives and major issues that were developed for the IPR.

- Step 4: Review of Draft Branch Plans. The Planning Group and the Director, DRS then review the Draft Branch Plans and suggest any necessary modifications. If possible, the necessary modifications are made by the Core Planning Group. If the Core Planning Group determines that this is not advisable, the draft plans are returned to the Branches for revision.

- Step 5: Revision of Draft Branch Plans. The Core Planning Group working with Program Staff then revise the draft plans based on the review.

- Step 6: Preparation of Draft DRS Plan. Following the program staff revision, the planning group combines the final branch reports and develops the draft DRS plan for submission to the Director, DRS.

- Step 7: Review of Draft DRS Plan. The Director then reviews the draft DRS Plan. If modifications are necessary, the Director will return the Drafts to the Core Planning Group. However, this is not usually necessary.

- Step 8: Review of Annual DRS Research Plan. The OD, NIH then reviews the DRS plan and returns it to the Director, DRS if revisions are necessary.

- Step 9: Development of Final Annual DRS Research Plan. The core planning group (the Executive, Budget, and Management Analysis Officers) then make any final modifications necessary, based on the review by OD, NIH.

- Step 10: Final Research Plan Submitted to OD, NIH.

C. ANNUAL EVALUATION PLAN

The Management Analysis Office is responsible for coordinating the Annual Evaluation Plan submission. However, the Division's evaluation projects are not funded with 1% set-aside money and so have not been included in this process. Most of the Division's evaluations are initiated by the Branch Chiefs; others occur as a result of advisory body recommendations or following ad hoc meetings with users of the Divisions' services. For example, users of the Division's library services may request a meeting with DRS staff to complain about a particular service. If warranted, this may lead to an evaluation.

There is no formal process or procedure used for these evaluation projects; the DRS staff feel that continual "evaluative feedback" is more than adequately provided through these mechanisms. These evaluations are usually conducted by the Management Analysis Office working in collaboration with other DRS offices.

D. OTHER PLANNING ACTIVITIES

- ADP Plan

  The Division participates in ADP Planning through the Management Analysis Office. This is a reporting exercise and has little influence on planning, per se.

- Legislative Planning

  Legislative tracking and input to legislative issues and activities is also the responsibility of the Planning Group. This activity is reactive in nature and does not require a formal process.

- Annual Report

  The Core Planning Group is responsible for "pulling together" the Branch reports and overseeing the final production of the Annual Report.

5. OUTCOMES OF AND BARRIERS TO PLANNING

Planning at the DRS is influenced by and, in turn, influences the overall Division. Most new program initiatives, for example, have been born of the planning process. The internal program review process (as previously noted) is the major mechanism for prioritization within the Division. This influences program activities, resource allocation, and, to a degree, management functions.

Some barriers to planning do exist, however, and are summarized by DRS staff as follows:

- Decentralization: The DRS supports all BIDs and the decentralized nature of the NIH makes it difficult to obtain consensus with respect to needs assessment.
- Limited Involvement of Intramural Scientists. Minimal involvement of the users in the planning processes compounds the problems created by a centralized agency. Increased involvement of these users would enable the DRS to plan more realistically and foster increased understanding.
- The Nature of Animal Resources. Cancelation of animal orders by Principal Investigators means that live animals remain the responsibility of the DRS and must be paid for. The money and time spent to gear up to, and down from animal production is lost when animal orders are cancelled. This makes planning for the allocation of funds and the utilization of resources difficult.

6. SUMMARY AND OBSERVATIONS

As a diverse service organization, the DRS maintains a planning system that enables them to anticipate, with reasonable accuracy, the service needs of the NIH intramural scientist and provide a sound foundation from which to handle the administration and management of the Division. This strategic/operational planning is based on the Internal Program Review, a cyclical process which includes all key DRS staff.

This comprehensive representation facilitates the interdependent relationship between planning and budget activities at the DRS. This, in turn, allows the planning group to establish production goals and make work assignments. These foci are illustrative of the types of planning required by an organization that is operating on a fee-for-service basis.

7. SOURCES OF INFORMATION

Data were gathered from written sources, including published documents as well as internal reports and memoranda, and from personal interviews with key DRS staff.

Personal Interviews:

- Ms. Jane Leitch, Budget Officer
- Mr. John Smart, Executive Officer
- Mr. Robert Weymouth, Management Analysis Officer

Published Documents:

Division of Reseach Services, Annual Report, FY 1981. National Institute of Health.

National Institutes of Health, Almanac, 1981. Division of Public Information, Bethesda, MD. NIH Publication No. 81-5.

Internal Documents:

Division of Research Services, "Objectives of Planning and Specific Planning Processes within DRS"

APPENDIX 1

PLANNING GUIDANCE TO DRS BRANCH CHIEFS

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service
National Institutes of Health

Memorandum

Date December 22, 1982

From Executive Officer, DRS

Subject DRS FY '83 - '84 Planning Process

To Branch Chiefs, DRS

The DRS FY '83 - '84 planning process will be built around several separate and distinct meetings. The first series of meetings has been scheduled with each Branch and will focus on the internal DRS planning process (See Attachment 1). Based on this information, a meeting will be scheduled in March with the Director, NIH, for the purpose of integrating DRS activities into overall NIH planning.

Each Branch should begin the preparation of information outlined in Attachment 2 and be prepared to discuss the internal and external aspects of DRS planning during your initial planning meeting. Attachment 3 is provided for your use in developing data for the internal planning process. Please have Attachment 3 completed for every activity in your Branch in accordance with the instructions listed in Attachment 4. The information developed in Attachment 3 will only be used for internal DRS planning. Its purpose is to help determine Division priorities and activities which could be reduced if we are not given sufficient funds to operate at the FY '82 level. A list of employees will be forwarded to you at a later date for use during the promotion review.

Five copies of the completed plan should be sent to me at least one week before your scheduled meetings. An agenda for the meeting will be developed and forwarded to you from your draft submission.

If you have any questions or need additional information, please contact Jane Leitch or Bob Weymouth.

John Smart

Enclosures

cc:
A.O.s, DRS

Schedule of Planning Meetings

Branch	Date	Time
BEIB	January 21	1:00 - 5:00
VRB	February 15	1:00 - 5:00
MAPB	February 7	1:30 - 5:00
LB	February 1	1:30 - 5:00

Division of Research Services

FY 83 - 84 Planning Outline

I. Internal Planning

A. Branch Priority Designation/Rationale

B. Funding/Budget

1. 1982 Actual completed by OD Budget
2. 1983 - 1984 Estimates completed by Branch

   a. Branches will plan for a 5% reduction in funds for the 1983 - 1984 period from 1982 level
   b. 5% reduction will be reflected in both Management and Service and Supply Funds
   c. Branch will determine the reporting level, i.e., Section, Unit, or Program

C. Staffing

1. 1982 Actual FTE position completed by OD Budget
2. 1983 - 1984 Estimate of FTEs required completed by Branches also considering a 5% reduction in funds

W/MRS outputs completed by MAO

D. Outputs

1. 1982 Actual W/MRS* outputs completed by MAO
2. 1983 - 1984 Actual projections completed by Branches

E. Impact Statements

1. Narrative explaining the impact of reductions on each activity

F. Promotion Review

II. External Planning for OD, NIH Review

A. Branches will prepare:

1. A status of current activites
2. A list of major proposed or planned activities for FY 83 - 84
3. A narrative of any important issues which need to be discussed

B. OD will prepare:

1. Agenda
2. Narrative on total DRS activities for FY 83 - 84
3. Consolidated budget and output information

*W/MRS = Workload and Manpower Reporting System

Division of Research Services

FY 1983 - 1984 Internal Plan

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Branch/Activity

Part I Branch Priority Designation/
Rationale

	1982 Actual	1983 Estimate	1984 Estimate

Part II Funding (in thousands of dollars)

Management Fund.....
Service & Supply Fund.....
Other.....
Total.....

Part III Staffing

Management Fund.....
Service & Supply Fund.....
Total.....

Part IV Outputs (W/MRS)

Part V Section Impact Statement

DRS FY 83 - 85 Planning Process

Instructions and Information

- Attachment 3 should be completed at the level which is determined by the Branch to be most appropriate, i.e., section, unit, or program. Further, complete a Branch summary which should reflect a total of the individual components.

- Part I - Branch Priority Designation/Rationale - For each activity reported on, determine the Branch priority or degree of importance for the activity to continue. The priority should be based on how the NIH intramural community would be affected by a reduction in effort. Therefore, if an activity was given a #1 priority ranking, it would be the most important activity to be continued. Each succeeding priority ranking, e.g., #2, #3, #4... would be progressively lower in priority. A brief description of the rationale should be developed to support the priority designation you have made.

- Parts II and III - Funding and Staffing - During FY 83 and 84 project that your actual 82 budget and staffing levels (see 4a and 4b) will be reduced by 5% for both the Management and Service and Supply Fund activities, i.e., a cumulative 5% decrease over both years, not a 5% decrease each year.

- Part IV - Outputs (W/MRS) - Attachment 4c contains the actual outputs for FY 79 - 82. Please review the outputs listed for FY 82 and make any adjustments that are necessary. Project the outputs for FY 83 and 84 utilizing the past trends and professional knowledge.

- Part V - Impact Statement - Provide a description of the impact, if any, that would result from the proposed reductions in budget and personnel.